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REPORT

ON THE

ADMINISTRATION

OF

THE FOREST DEPARTMENT

IN THE

SEVERAL PROVINCES UNDER THE GOVERNMENT OF INDIA

1872-73.

IN TWO PARTS, WITH APPENDICES.

By B. H. BADEN-POWELL,
BENGAL CIVIL SERVICE,
OFFICIATING INSPECTOR GENERAL OF FORESTS.

Vol. II.

(APPENDICES.)

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RESOLUTION.

AGRICULTURAL DEPARTMENT.

FORESTS.

Calcutta, the 31st March 1874.

READ—

The progress report of the Forest Administration of Bengal for the year 1872-73.

THE operations of the Forest Department are still limited to the tracts of country mentioned in last year's report. The system of administration has, however, undergone certain changes. The forests in Chittagong, as in Assam in the previous year, have been placed under the control of the Commissioner of the division, under whose control the Assistant Conservator performs his duties of inspection, management, and collection of revenue.

2. During the year Dr. Schlich was appointed Conservator of Forests, and has visited and reported upon the principal forest tracts, and occupied himself in conferring with the local officers, and in organising, on an improved footing, the future working of the department.

3. The parts visited were the Sikkim, Western Dooars, Assam, Patna, and Chota Nagpore forests. Besides these explorations, inspection work was carried on by the Deputy and Assistant Conservators in the Jynteah Hills, Kamroop, and other parts of Assam; in the Sunderbuns, and in the forests bordering the principal rivers in Chittagong.

4. The result of Dr. Schlich's explorations will form valuable groundwork for forest administration in future years. He has gathered detailed information regarding the constitution of each tract, classifying the different descriptions of forests, and endeavouring to identify and name the various species. The following distribution of forests was found:—

(1.) *Sâl forest*, found in Sikkim on the lower hills up to 3,000 feet, and in the adjoining plains running through the Western and Eastern Dooars; also in the Kamroop, Nowgong, and Durrung districts, and in the lower portion of the Garo and Khasi Hills; but most abundant all over Chota Nagpore.

(2.) *Khair and Sissu*, which usually appear together, found along the banks of watercourses in the Sikkim, Terai, and Western Dooars.

(3.) *Mixed plain*, comprising the forests in which neither of the above-mentioned trees prevail sufficiently to classify them accordingly, found in Sikkim and in Assam, where it extends in evergreen patches of greater or lesser extent, north and south of the Brahmapootter through the districts of Kamroop, Durrung, Luckimpore, and Seebsaugor.

(4.) *Savannah forest*, or grassy areas, with and without trees, found in Sikkim, Western Dooars, and in Assam, occupying the space between the Brahmapooter and the mixed plain forest.

(5.) *Upper hill forest*, in Sikkim, and the hilly portion of Assam, being the temperate forests productive of oaks, magnolias, chestnut, walnut, and maple. In the Khasi Hills these forests occur in patches only near watercourses or springs. They are well stocked, but the trees are inferior to those in Sikkim.

(6.) *Lower hill forests*, occupying the tracts between the mixed plain and the hill forests. These tracts are characterized by a vegetation intermediate between the upper and lower groups; a few trees of the hills are here met with, and a few of those which also grow in the plains. Thus, sâl is met with and *Gordonia*, *Cedrela*, *Mesua*, *Engelhardtia*, and *Duabanga*. In Assam, this forest group is distinguished chiefly from the mixed plain forest, by its richness in bamboos. Around

Buxa, in the Western Dooars, forest of this class is stated to be well timbered; and a similar vegetation was noticed on the lower slopes of the Garo, Khasi, and Naga Hills up to 3,000 feet.

In the Palamow district, what is called the lower hill forest is of an entirely different character; it occupies the slopes of the spurs that extend from the limit of the Chota Nagpore plateau towards the Gangetic plain. Here the characteristic species are Khair (*Acacia catechu*), Palâs (*Butea frondosa*), *Terminalia tomentosa*, and *Zizyphus jujuba*. What is called the "upper forest" of Palamow contains a large number of species additional to these, including *anogeissas* and bamboos.

(7.) *Pine-tree forest* in the Khasi and Western Naga Hills, between 2,400 and 6,000 feet.

(8.) *Soom forest* has been separately classified, although it differs only from the mixed forests of the plains in producing the soom-tree, a species of *Machillus*, which is valuable as the food of the Assam silkworm.

(5.) Progress has been made in identifying the numerous species of trees hitherto unknown save by their native names, and Dr. Schlich is having general descriptive lists compiled. For Sikkim this work is nearly completed.

Area.

6. In the Resolution on last year's report the Conservator was asked to state the area of Government forest in each forest district, and the rules under which those areas are administered. At the close of the year the area of reserved forest stood thus,—of which 214 square miles have been added during the year:—

	Square miles
Sikkim	106
Kamroop	38½
Nowgong	75¾
Seebsaugor and Naga Hills	100
Total ..	320¼

For want of data the area of unreserved forest in the forest divisions which have already been established (Cooch Behar, Assam, Dacca, and Chittagong) can only be given by a rough estimation at 15,000 square miles, exclusive of the forests of the Khasi and Jynteah Hills. The above figures form but a small portion of the total forest area in Bengal, which is roughly stated at 59,225 square miles. The districts richest in forests are Assam, the Sunderbuns, and Palamow. In Assam 92 per cent., and in Palamow 85 per cent., of the total area are chiefly forest; while the luxuriant growth of the Sunderbuns covers an area of 3,108 square miles, consisting of dense and impenetrable undergrowth of goran (*ceriops*), a kind of mangrove, from 6 to 12 feet high, mixed with larger trees, and a more or less thick growth of mature trees, the whole being frequently choked up with heavy creepers of a girth of 10 to 15 inches, which crush down the young trees on which they rest.

Forest reserves.

7. Some progress has been made during the year in the selection, demarcation, and mapping of reserves in Assam and Cooch Behar. 214 square miles have been added to the reserved tracts, and 342½ square miles were selected, besides what had been notified as reserved in the *Gazette*. A reserve examined in the Darjeeling Terai, with outlets for timber in the Mahanuddy and Teesta rivers, was found to contain 8,404 acres, consisting of sâl, chalownee, saj, sitsal, toon, sissu, khair, katoos, and India-rubber; sâl trees being the most numerous. In the Western Dooars a reserve of 4,468 acres of sâl, sissu, and khair forests, was surveyed and mapped. In Kamroop and Nowgong five lowland reserves, aggregating 49 square miles, have been demarcated, containing sâl with a little poma and sam. On the Mikkir Hills, above Nowgong, has been demarcated a dense forest of the regular Assam trees, such as the nahor, the poma, sam, and jamu, &c. On the confines of the Naga Hills and Seebsaugor, the Nambor reserve of 100 square miles has been demarcated, containing mixed, plain, and hill forest. In the Luckimpore district, nine tenths of which is forest, no reserves have been made. Care has been taken that the establishment of these reserves

shall not trench upon the rights of the surrounding villages, who have always taken, without hindrance, any forest produce they required for domestic use, and for whom there are all over Assam very ample supplies in the Government open forests. Regarding the question of forming reserves in Chittagong, His Honor, though not prepared to agree with his views, has perused the remarks of Mr. Davies with much interest. He would prefer to leave the question open until our stock of local knowledge is increased in the direction indicated by the Conservator.

Protection and improvement of forests.

8. The description by the Conservator of the devastation and waste going on without restriction from firing, cutting, jooming and other causes in the sâl and pine forests of Assam, and in the sâl and lower mixed forests of Chota Nagpore, and the account which Mr. Davies gives of the manner in which the Chittagong forests are denuded by unlimited cutting and jooming, show the necessity which exists for a careful consideration of some practicable scheme for their protection; but unfortunately owing to the mischief being so widespread, a complete remedy cannot be provided without extensive preventive measures, involving a considerable increase to the forest establishments, and probably a good deal of harassment to the people.

According to the Conservator, the division in which measures are most needed to prevent a dearth of fuel and timber for local purposes is Patna. There, not only a scarcity of wood-fuel exists, but also a difficulty in obtaining land for forest purposes. Regarding the insufficiency of the wood-supply the Conservator writes thus:—"At present this state of things does not indicate a hardship, as over the greater portion of the area dried cow-refuse is the material principally used, and as the custom of burning cow-refuse is very old, and the people seem to prefer it to wood; indeed the Conservator has seen the former used in localities where wood-fuel was to be had within a few hundred yards. Another question, however, is, whether, it will not become a hardship. Agriculture is progressing, and the failure of the opium crops has of late called for a searching investigation as to its causes. If it should be found that one of them is the exhaustion of the ground, cow-refuse will have to be applied to its legitimate use to manure, and the want of fuel will then be deeply felt. But, even apart from the opium question, the time will come when cow-dung will be used for the manuring of all lands under cultivation, and the question of providing fuel will have to be considered."

Plantations.

9. Eighty-nine acres were added to the plantations in 1872-73, and Rs. 16,200 were expended within the year. At the end of the year the area stood thus:—

	Acres.
Cooch Behar	563
Assam	17
Chittagong	13
Total ...	593

Two important points specially referred to in the Lieutenant-Governor's resolution on the last year's report, have received the close attention of the Conservator, namely, whether sâl and teak can be made to grow large in parts of Bengal. To solve the first question, Dr. Schlich visited the Chota Nagpore plateau, and reports the sâl forests there to consist of shoots from old stumps which are constantly cut over as soon as they are fit for local purposes; the people burning almost nothing but young sâl shoots a few inches in circumference. Even in places where the trees had reached a larger girth, and gave promise of further growth, they generally, Dr Schlich states, fall under the axe before they attain a girth of three feet. He had, however, come across a small number of really large trees, proving what excellent timber may be produced if only protection from injury is given, and he instances a small patch, which contained 36 well-grown trees, with an average of 46 cubic feet of

timber a-piece, and other isolated trees of 6 feet girth. His view is that it rests entirely with us to produce large sâl timber in the Hazareebagh district.

The teak question does not admit of so easy a solution. Two small experimental plantations in the Dooars have been unsuccessful. The Bamunpokree spur in Sikkim is, however, so far doing well; it was begun in 1868, and in the successful part of the plantation the young trees are healthy.

Sundry useful reforms have been effected in the management of the plantation, which is now being extended as rapidly as means permit. There have been, however, sickly signs in several of our young teak plantations, which have caused some uneasiness to the Conservator.

The Conservator reported also specially upon the planted teak of the Patna division. He observed and measured some 27 large teak trees in the districts of Patna, Shahabad, and Gya; he believed them to be about 70 years of age; he found their average yield to be 24½ cubic feet.

Dr. Schlich also gives some very interesting information as to the progress and condition of the teak forests in Assam, and sums up his conclusions as follows:—"Teak of inferior and moderate quality can be produced in the Bengal plains, Behar, and in Lower Assam, but there is no proof as yet to show that superior teak can be produced in the Sikkim Terai or in Lower Assam, and in Upper Assam it appeared doubtful whether it will thrive at all."

The Lieutenant-Governor has directed that the Kulsee plantations in Lower Assam be extended as rapidly as possible, and that a part of the plantation be laid down with the more valuable timber trees, namely, toon, sam, and sissu.

Mahogany.

10. Mahogany grows well in Calcutta; there are several young trees on the road-side at Titaliah, and in different other localities, and some beautiful specimens have been brought from Sherghotty, so that there is reason to believe it can be successfully cultivated in the Bengal plains, but whether it will thrive in Assam appears doubtful. Seed is chiefly obtained from Jamaica, but it stands carriage so badly that the only hope of raising large plantations of it, is to find out some locality in India where it will seed freely. With this view a large quantity of young plants has been lately distributed for plantation to jail gardens. However, there is some prospect of the trees about Calcutta seeding freely in the course of a few years. In 1872 nearly 2,000 were raised from seed produce at Calcutta and Barrackpore, and about 500 seeds have been obtained later.

Caoutchouc.

11. Caoutchouc forests have not been specially classed, because the India-rubber trees are not found in groups, but are scattered in single trees over nearly all the forests, the best localities possessing scarcely more than 20 trees per square mile, and the greater portion of the forests much less. They grow in all parts of Bengal, but luxuriantly only in the moist forests along the foot of the hills in Sikkim, Bhutan, Assam, Cachar, Munipore, Lushai country, and most likely Chittagong. The caoutchouc tree is also found in Burmah; but the most favorable province is Assam, especially the dense evergeen damp forersts near the foot of the Himalayas in the Luckimpore and Naga Hill districts. Up to the present only small experimental plantations have been made, but a plan of establishing them on a large scale is under discussion, and the Lieutenant-Governor has expressed his opinion that the most valuable and most paying forest operations we can undertake in Assam, will be the preparation of considerable areas of rubber plantation. Dr. Schlich estimates the rubber exports from Assam to have amounted of late to—

7,500	maunds in	1870.
12,000	„	1871.
21,000	„	1872.
11,000	„	1873.

The falling off in the last year was due to the closure of the rubber forests of Luckimpore, mainly with the view of preventing frontier complications. The value of this trade must be great, inasmuch as the price of rubber in Calcutta ranges from Rs 45 to Rs. 80 per maund. The importance of

a due administration of the rubber revenue may be estimated from the fact that a European dealer in Assam offered to pay one lakh a year for the monopoly of rubber in all the Luckimpore forests for three years. The Government could not accept the offer because its acceptance would involve the lessees, having direct relations with the border tribes who usually bring rubber into the market. The Commissioner of Assam has proposed to establish a Government monopoly of rubber, whereby a Government officer shall buy all rubber brought into depôt, and sell it periodically by auction or otherwise, and the proposal has been approved, but the details of its working have not yet been settled. The Sikkim and Cachar forests also yield a considerable amount of rubber, the estimated yield of the former being about 700 maunds a year. The rubber was for one year collected by the Forest Department itself, and the rubber brought to Calcutta was so much purer and cleaner than ordinary rubber that it fetched nearly 40 per cent. more than the ordinary market price. In September 1872 the Deputy Commissioner, Darjeeling, sold the right to collect on the left bank of the Teesta for Rs. 3,400, leaving to the Forest Department only the right bank of the Teesta. The result is, that the collections of the present year amount to 57 maunds only, and the cost of collection has risen to Rs. 16 per maund. The fact of the collections being made by two different parties multiplied opportunities for theft. In future, the whole rubber of the Government forests in Sikkim will be collected through the Forest Department, and it is expected that Rs. 12,000 will be realised therefrom. For Cachar no plan for working the rubber forest has yet been framed. But wherever rubber is collected under the Forest Department, every effort must be made to regulate the process, and so to restrict the tapping as to spare the lives of the trees, and give each tree a period of rest, and also so as to keep the juice clear of impurities, and to prepare it in the best way on the spot. Whatever may be done, the difficulty will always remain that India-rubber trees are scattered over the forests at long intervals; and until we have regular plantations of rubber trees, economical collection of juice on the most approved system will not be possible. It is hoped, therefore, that plantations of the different caoutchouc-yielding trees will soon be formed.

Timber operations.

12. Little or no fresh felling has been done, the operations of the department having been confined to bringing out of the forests timber cut in previous years, and to selling off deteriorated old stock. The sales of Darjeeling timber comprised 1,096 sâl logs, 200 logs of temperate trees, 6 sleepers, and 288 planks and scantlings, leaving the large number of 31,660 pieces still to be disposed of, lying partly in depôts and partly scattered about the forests. The prices fetched by the 200 logs were extremely small, barely 1½ annas per cubic foot, and did not cover the cost of carriage; yet the logs were of the best class of trees, namely, magnolia, chestnut, and oak. The dealers, it is said, much prefer to buy standing trees, which they can fell and square for themselves, and have combined to obtain the timber below the real value. The prices, however, improved at the later monthly auctions which must be continued, as the timber felled some years ago is fast spoiling in the forest, and it will be advisable to stop the sale of standing timber until the material in the depôts has been disposed of. The sales of the sâl logs were more favorable, the rates varying from 12 annas to Re. 1-8 per cubic foot. The auction sales of sâl logs in the Dooar forests were also successful, the timber fetching 11¼ annas, and yielding a net surplus of 3¼ annas per cubic foot. The sâl sales in Lower Assam, though on a small scale, were also a success, 50 logs being sold at the rate of 15 annas per cubic foot, yielding a net surplus of 6⅛ annas per cubic foot. The experiment was concluded of floating down the river a certain number of logs cut some years ago in the evergreen forests of Upper Assam, and 474 logs thus brought into the market were sold, including nahor, ajhar, and others of the best timbers of the hill forests. On this transaction there was a loss of Rs. 2,839,

and Dr. Schlich reports that in Assam "the price of timber other than sâl is too low to make the working by departmental agency remunerative."

Private timber operations.

13. There is no accurate record of the timber cut for private purposes under permits except for the Cooch Behar Division, where 5,228 pieces were cut, in which a revenue of Rs. 6,714 was realised. About 250 logs of magnolia, chestnut, chalownee, and toon, cut in the Darjeeling forests under permit, yielded a revenue averaging over Rs. 10 per log. In the Dooars the revenue averaged under 12 annas per tree felled under permit. The timber taken out of the Chittagong forests under permits came to 2,164 tons, as against 1,578 tons in the preceding year; but in these forests the permit-holders cut where and how they like, whereas in the Darjeeling forests they can only cut under the supervision of the Forest Department.

Financial results of the year.

14. The totals of receipts and expenditure were as follows:—

Receipts.

	Rs.
Sale of timber brought to depôt by Government agency ..	24,845
Sale of fire-wood and charcoal removed by purchasers	6,504
Permit fees, rent from squatters, &c. (includes civil officer's collections)	1,09,333
Grazing dues and fisheries	710
Sales of fruits, babool-pods, India-rubber, &c.	8,233
Fines and forfeitures .. .	79
Miscellaneous receipts	146
Total for 1872-73	1,49,851
Total for 1871-72 ..	1,39,089

Expenditure.

Conservancy and working	28,526
Establishment, &c.	71,090
Total for 1872-73 ...	99,616
Total for 1871-72 .	1,08,339

This shows a larger surplus than in preceding years, but in fact much of the forest revenue of Bengal is raised by the ordinary revenue officers without the co-operation of the Forest Department, the largest item being Rs. 46,437, the net yield of the tolls on the Chittagong rivers; so that the actual surplus realised by the department was Rs. 3,798 only. The receipts of the Cooch Behar Division are expected to rise.

15. Forest administration, though still in its infancy, has made some advance, and the Lieutenant-Governor observes with satisfaction the interest displayed in their work by the forest officers, and acknowledges with thanks the care and ability with which Dr. Schlich has administered the Department.

By order of the Lieutenant-Governor of Bengal,

H. L. DAMPIER,

Secy. to the Govt. of Bengal.

D. E. J.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN BENGAL

For the Year 1872-73.

By W. SCHLICH, Ph.D.,

Conservator of Forests, Bengal.

INTRODUCTORY.

The Forest Department of Bengal has during the year 1872-73 undergone considerable changes. The Conservator of Forests was transferred to the Central Provinces; in December 1872 a new Conservator took charge, and at the same time the executive staff has been raised from six to eleven officers. The Chittagong Division has been separated from the others, and the Commissioner appointed Conservator of Forests. As may be expected, these changes caused, in the first instance, a certain stop in the work, which was followed by a course of action somewhat different from that hitherto observed. The main feature of this change may be said to be of a statistical nature. Hitherto limited data only collected in the forests were available to guide forest officers in the several measures to be taken, whereas the present Conservator's first step was to start an efficient system of collecting detailed information, without which all systems of working are foundationless. The progress made in this direction is as yet small, considering that the work was commenced three months before the close of the year; but in another two years it is expected that a sufficient knowledge of the forests in the different parts of the country will be available, from which a general description of Bengal, from a forest point of view, can be compiled. Until that time arrives it will be advisable to arrange the annual report in the manner hitherto in force.

2. Before proceeding to the record of the work done during the year, it will be necessary to note here the present organization of the department. There are five divisions, which are administered in the following manner :—

First.—Cooch Behar Division, coinciding with the boundaries of the Cooch Behar Commissionership. The forest officers are under the direct orders of the Conservator of Forests.

Second.—Assam Division, coinciding with the boundaries of the Assam Commissionership. The officers are under the orders of the Commissioner of Assam. The Conservator controls the accounts, and has power of inspecting and making suggestions.

Third.—Dacca Division, comprising the forests in Sylhet and Cachar. The forest officer is nominally under the direct orders of the Conservator.

Fourth.—Chittagong Division, comprising the forests in the Chittagong Commissionership. The Commissioner has been gazetted Conservator of Forests, and the Conservator of Forests, Bengal, has no control of any kind over the work. He may be sent on inspection duty, however, with the view of making proposals for the better management of the forests.

Fifth.—Bhaugulpore Division, comprising the whole of the western districts, Chota Nagpore, Patna, and Bhaugulpore.

3. Only in three of the above divisions, namely, Cooch Behar, Assam, and Chittagong, has the administration really been started; whereas little or nothing beyond a very general exploration has been done in the remaining two. For Dacca no officer was available since November last; and Bhaugulpore has been closed in December at the recommendation of the Conservator of Forests, and in order to obtain a sufficient staff of officers for the other divisions.

4. The responsibility for the work in the Cooch Behar Division rests with the Conservator of Forests; in Assam and Chittagong, with the Commissioners of the divisions.

5. The tracts of Bengal in which the Forest Department has been started form only a small portion of the total area. Nothing has been done as yet in the remaining parts. What the extent of forests in Bengal may be is quite unknown at present. An estimate has been made, it appears, giving 59,225 square miles as the area, but this is only an estimate *par excellence*, as the actual area may differ 50 and more per cent. one way or the other. A better estimate can only be arrived at by degrees.

6. During the year further inquiries have been instituted with the view of ascertaining how far the forests meet the requirements of the country as regards timber and fuel. All these confirm the statement made in His Honor the Lieutenant-Governor's resolution on last year's report, to the effect that Bengal is sufficiently supplied with small timbers and firewood with the exception of a portion of the Patna division. But even there no hardship is experienced at present, since large quantities of small building wood are imported from Palamow, and the cow refuse forms a fuel very congenial to the tastes of the people.

7. The people living in the Government forest or its "immediate" vicinity throughout Bengal, ~~except in Sikkim,~~ obtain their domestic requirements of forest material free of charge, and they are better off in that respect than the people of most other parts of India.

Section I.

Inspection of Forests.

8. The general inspection of Cooch Behar and Assam has been completed some years ago. The Conservator, however, visited both divisions since his arrival in Bengal, and there are a few remarks which he considers should be recorded under this heading, although some of them may be a repetition of what has been recorded before.

Cooch Behar Division.

9. *Sikkim.*—The Government forests contain the following areas:—

9 plain forests containing	...	...	30·7
21 hill forests ,,	...	...	74·6
		Total ...	105·3 square miles.

These figures do not include a tract of Government forest situated in Daling sub-division, along the east bank of the Teesta, the area of which is not known, and the boundaries of which have not been laid down either on the map or on the ground.

10. The area of Sikkim amounts to 1,234 square miles, its population to 95,224, consequently the proportion of Government reserved forests to total area is 9 per cent., and the area of Government reserved forest per head of population 0·7 acres.

11. The proportion of Government reserved forests is by no means excessive, especially when it is considered that three-fourths of Sikkim are hill territory, where not only firewood is in greater demand than in the Indian plains, but where the forests have also to perform very important duties with regard to the regulation of moisture. In addition, it must be borne in mind that the cultivation of tea occupies a large proportion of the area, and that it evidently will be extended very considerably during the next few years. It is true there are yet extensive areas of forest besides the Government reserved tracts, but tea cultivation has been very successful of late, large additional clearings are made year after year, and, as far as can be judged from experience, the greater portion of the forests outside the reserves, and a few municipal lands, will be converted into tea gardens, or at least into tracts bare of timber forest, in the hills as well as in the adjoining terai.

12. The fabrication of tea requires large quantities of forest material for buildings, charcoal, and tea boxes, hence it is quite certain that the Government forests in Sikkim will become extremely valuable as soon as the material in the private forests will be exhausted, that is to say, after a limited number of years.

13. Whatever may be the functions of forests with regard to the greater or smaller quantity of rain in general, there can be no doubt that the devastation of the Sikkim hill forests will lessen the rainfall and disturb the proper regulation of the moisture. Hill forests, like those of Sikkim, especially when situated at the upper portions of the ranges, will decrease the velocity of the clouds and consequently increase the probability of their coming down in the shape of rain. The chief point, however, is that they prevent the rapid collection of the rain-water in the streams, by retaining a great portion of it and enabling it to sink into the ground, thereby preventing inundations, and reducing the destructive effects of rain-water rushing down steep hill-sides. Moreover, they retard evaporation, and by these actions combined they insure a supply of spring water throughout the year.

14. The opinion of some of the local authorities is that there are too many reserved forests in Sikkim. This view is however not in accordance with the experience gained in other parts of the world. On the continent of Europe, where districts similar to that of Sikkim may be found, it is considered advisable to keep three and four times as high a percentage of land under forest, because it is taken into consideration that these territories have to secure the regular supply of water not only within their own limits, but also to the adjoining plains, sometimes for long distances.

15. If, therefore, all lands now included in the Government reserved forests contained, or were likely to produce, good timber, no part of the area should be given up. The hill forests are all stocked with useful timber, or are capable of producing it, and they should be preserved as they are now fixed. The terai forests, on the other hand, contain areas which neither contain good timber nor is such likely to grow on them. These tracts should be marked off, and they may be given up when the advisability for doing so arises. For some time to come this will not be the case, as of very extensive areas in the hands of private parties only a portion is under cultivation as yet.

16. The forests are much richer in timber of different kinds than it would appear from what is on record at present, and arrangements have been made to

collect detailed information regarding the constitution of each tract. In order to show the forests in a manner easy to understand, they have been classified as follows:—

(1) Sal forest.
(2) Khair and sissu forest.
(3) Mixed plain forest.
(4) Savannah forest.
(5) Lower hill forest.
(6) Upper hill forest (temperate forest).

Under sal forest would come all tracts which contain so much sal that its importance outweighs that of all other trees. Khair and sissu appear usually together, sometimes one and sometimes the other prevailing, and accompanied by small numbers of other trees. This class of forest is found on the banks of watercourses, on ground very little raised above the bed of the rivers and creeks. Mixed plain forest comprises the forests in which neither of the abovementioned trees prevails sufficiently to classify them accordingly, as for instance in the Dulka Jhar reserve. Savannah forest comprises all areas covered with grass, either without trees or containing small numbers here and there. The upper hill forests are the temperate forests, the most characteristic trees of which are oaks, magnolias, chestnut, walnut, lali, maple, &c. Under lower hill forest should be understood the tracts between the plain forests and upper hill forests, and on which the trees of both intermix with each other.

17. The number of species of trees found in the Sikkim forests is very large, especially in the lower hill forest. A beginning has been made towards compiling a complete list, which will be ready next year. The most important trees are the following:—

Sal	*Shorea robusta.*
Toon	*Cedrela toona.*
India-rubber	*Ficus elastica.* *Ficus laccifera.* *Ficus obtusifolia.*
Seet sal	*Dalbergia latifolia.*
Khair	*Acacia catechu.*
Sissu	*Dalbergia sissoo.*
Chelownee	*Gordonia sp.*
Saj	*Terminalia sp.*
Champ	*Mechelia excelsa.*
Lalchamp	*Magnolia Champbelli.*
Acrote	*Inglans regia.*
Katoos	*Castania sp.*
Book	*Quercus lamellosa.*
Phalat	*Quercus annulata.*

A more detailed description of some of the tracts will be found under Section II.

18. *Western Dooars.*—The Julpigoree district, situated at the foot of the Himalayas, is divided into two parts by the river Teesta. The Government forests are all situated in the eastern part—the Western Dooars. The northern boundary of this tract runs along the foot of the hills from the Teesta opposite Sivoke until, to the vicinity of Buxa, where a strip of hill land up to an elevation of about 6,000 feet is taken in; the boundary then runs to the place where the Sunkos emerges from the hills. On the east the Sunkos forms the boundary, and on the south the Cooch Behar estate. The tract of land thus described is on an average 80 miles long from east to west, and from 25 to 30 miles broad. With the exception of the country around Buxa, the whole district consists of level land intersected by an endless number of watercourses.

19. The hills near Buxa are covered with forest, chiefly or entirely of the class designated as "lower hill forest." They are well stocked, and the trees attain a large size. From the foot of the hills up to the station of Buxa, at

an elevation of about 2,000 feet, thirty-one species of trees were observed, of which the following appear to be the most important:—

Sal	(*Shorea rubusta*)—	Scattered over the forest in fine grown specimens.
Toon	(*Cedrela toona*)—	More numerous than usual.
Burr	{ *Ficus laccifera* / *Ficus obtusifolia* }	—Very numerous, but young trees prevailing.
Chellownee	(*Gordonia sp.*)—	Numerous and in fine large specimens.
Katoos	(*Castania sp.*)—	This tree belongs to the temperate forest.
Katoos	(*Castania sp.*)—	Fruit eaten; wood good, and used at Buxa for planking.
Champ	(*Michelia sp.*)—	Supposed to be different from the white magnolia of the temperate forest. Wood used extensively.

20. *Forests in the plains.*—The great bulk of the Western Dooars may be described as a grass plain, over which cultivation and forest tracts are scattered. The former is chiefly found in the southern portion, and the latter in the centre and northern part. The forests may be classed as sal forests, khair and sissu forests, and savannah tracts.

21. *Sal Forests.*—The distribution of the sal forests is peculiar, as it depends on the distribution of water. The hills north of the Western Dooars are drained by an endless number of small streams. Many of these, however, disappear, or are considerably reduced in size, just before leaving the hills, as a great portion of the water sinks into the ground. The water thus disappearing all along the foot of the hills is carried south close under the surface, and at a distance of about ten miles, on an average, from the foot of the hills, it appears again in the shape of numerous springs, which keep the lands around them moister than the rest of the area. At the same time the tracts where these springs appear are slightly raised above the general level, whereby a good drainage is secured. The sal forests in the Western Dooars are chiefly found around these springs, that is to say, in moist and at the same time well-drained localities. A good illustration is the Mooraghat forest, situated half-way between the foot of the hills and the southern boundary of the Western Dooars. In this forest the head-waters of the Doodooa are situated, which stream has at the southern end of the forest a current of water in the dry season of about 2 feet deep and 50 feet broad. And again, the mountain torrent which provides the station of Buxa with water disappears entirely about two miles lower down, and it appears again in the Buxa forest some ten miles further.

22. *Khair and Sissu Forests.*—The khair and sissu forests are found as in the Sikkim Terai, along the banks of watercourses; but khair occupies also localities somewhat more elevated, although still close to the streams.

23. *Area of Government open Forests.*—It is not known what the total area of Government open forests in the Western Dooars is. A number of tracts in the plains were declared Government open forests, with sal, sissu, khair, and chellownee as reserved trees. Of the lower hill forests around Buxa none have been declared either reserved or open forest.

24. The following data show the proportion of open forest to total area of the Julpigoree district:—

Area of district in square miles	2,906
Population	418,048
Area of Government open forests, 219,227 acres; or in square miles	342·5
Proportion of Government open forest to total area of district	12 per cent.
Area of Government open forest per head of population	0·5 acres.

25. The Government open forests in this district have to perform no (or very limited) functions with regard to the regulation of moisture, and their object is exclusively to provide forest material. The western portion of the Julpigoree district is supplied chiefly from the forests in Sikkim and from the

Bycuntpore forest within its own limits. The Western Dooars themselves are very thinly inhabited, and the requirements of the people are very small indeed. On the other hand, timber is much in demand in the districts south of the Dooars, especially in Cooch Behar, Rungpore, and the western part of the Dacca division, to which it can be transported by a number of streams, as the Teesta, Juldaka, Toorsa, and Kalajanee. The supply from the forests in the Western Dooars should therefore be considerably larger than the requirements of the inhabitants within its limits. Considering that the area under cultivation east of the Teesta is only a small portion of the total area, and that immense tracts outside the forests are available for its extension, the percentage of forest land would not appear high. But on examination it has been found that of the area now within forest limits, only a small portion is actually covered with trees, whereas the bulk of the area contains almost nothing but grass. The Mooraghat forest, for instance, which has always been considered as one of the richest, or the richest tract, has been examined in detail by the Conservator of Forests with the following result:—

Sal forest, about	3,800	acres	=	29 per cent.
Grass land with few or no trees, about	9,360	„	=	71 „
Total ..	13,160	„	=	100 „

Judging from these figures, as well as from an inspection of most other important tracts, it is estimated that out of the area demarcated as "Government open forests," only about 20 per cent. are actually forest, and 80 per cent. grass or savannah lands.

26. The lower hill forests around Buxa with their beautiful timber, on the other hand, do not appear to have been taken any notice of in the selection of the Government forests. These tracts are of importance with regard to the regulation of moisture, prevention of land-slips, &c., and a good proportion of their area should be preserved.

27. *Reserved Trees.*—The reserved trees have been badly chosen. Of chellownee there is such a limited quantity in the demarcated tracts, that it was hardly worth while to reserve it. Moreover, it is of value only for local consumption at present, for which no payment is demanded. On the other hand, toon and India-rubber, two trees of the highest importance, have been left out.

28. *Reserves to be Demarcated.*—The plan to be followed, then, would be to select the really valuable tracts in the plains and demarcate them as reserved forests. The total area thus obtainable will not surpass 30,000 acres in all, or about 14 per cent. of the present "Government open forests." After this work has been completed, a portion of the hill forests near Buxa will be demarcated as reserves, say 20,000 acres, so that the total area of Government reserved forests in the Western Dooars would finally stand about as follows:—

Total area of Western Dooars (territory east of Teesta), approximately	..	1,850 square miles.
Area of Government reserved forests, about	..	80 „ „
Percentage of Government reserved forest to total area of Western Dooars ..	..	4·3 per cent.

This area would be less than one-fourth of that of the present "Government open forests."

Assam Division.

29. The Commissionership of Assam, as at present constituted, is bounded on the north by the great Himalayan range, the foot of which forms the boundary line. On the east and south-east it is bounded by a range of mountains running from north to south by south-west as far down as Arracan, and which might be called the Indo-Burmese range. About 60 miles south of, and parallel with, the Himalayan range, a mighty spur runs from the Indo-Burmese range towards the west, which is called, in its eastern portion, the Naga Hills, in the centre Jynteah and Khasi Hills, and in its western part the

Garo Hills. The southern foot of this range forms, generally speaking, the southern boundary. The western boundary is quite artificial, and can only be described as the western boundary of the Kamroop and Khasi Hills districts.

30. The Brahmaputra, after breaking through the Himalayas in the vicinity of the Indo-Burmese range, runs first towards the south-west, and then west, through the whole length of Assam, taking in a large number of feeders of all sizes. On the whole the Commissionership of Assam may be said to comprise the valley of the Brahmaputra for a length of about 400 miles, with a breadth of 80 to 100 miles.

31. The country thus described, with the exception of the tracts occupied by so-called independent hill tribes in the eastern portion, is divided into seven districts of the subjoined dimensions :—

Districts.	Area in square miles.	Inhabitants.	Inhabitants per square mile.	Area under cultivation in square miles.	Percentage of area under cultivation to total area.
Kamroop	3,631	561,681	155	770	21 per cent
Durrung	3,413	236,009	69	323	9 „
Nowgong .	3,648	256,390	70	363	10 „
Seebsangor ...	2,413	296,589	123	422	17 „
Luckimpore	3,145	121,267	39	127	4 „
Naga Hills	4,900	68,918	14	200	4 „
Khasi and Jynteah Hills	6,157	141,838	23	50	1 „
Total	27,307	1,682,692	62	2,255	8 per cent.

It will be seen from the above data that only a very small portion, 8 per cent., of the area is under cultivation, whereas 92 per cent. consist of forest, waste land, water, &c. Corresponding with this fact, the population amounts to 62 per square mile.

32. The configuration of Assam must have been originally entirely hilly, with the Himalayas on the north, the Indo-Burmese range on the east, the Naga, Jynteah, and Khasi Hills on the south, and the valley thus formed filled in the lower portion with the waters of the Brahmaputra and its feeders, and perhaps the sea. In course of time deposits were made, and the base of the valley raised, with the exception of the actual watercourses now existing. The physical aspect now presented consists therefore of hill ranges on the north, east, and south, and a plain between, interrupted by isolated small hillocks and little ranges, especially in the Kamroop and Nowgong districts. The Brahmaputra is a fine river, navigable up to the eastern boundary of Assam. It has numerous large feeders, which carry themselves considerable volumes of water; and on the whole the means of water carriage in Assam may be said to be superior to those of perhaps any other part of India.

33. The climate of Assam is damp in the plain and lower hills. The following table gives some data regarding Gowhatty in Lower Assam, Debrooghur in Upper Assam, and Shillong in the Khasi Hills :—

	Elevation above the sea.	Average rainfall during the last two years.	Temperature.			
			Annual mean.	Mean of November to February.	Highest	Lowest.
Gowhatty .. .	134	63	76	67	.	48
Debrooghur	620	117	73	63	...	
Shillong	4,825	73	62	53	81	35

The meteorological reports of Bengal unfortunately do not give the data to make the above table complete. It will be observed that the rainfall in Upper Assam is nearly double that of Lower Assam, whereas the temperature is a few degrees higher in the latter. On the southern slope of the Naga, Khasi, and Garo Hills, the rainfall is extremely heavy, amounting to as much as 600 inches at Cherrapunchi.

34. The hills in Assam may on the whole be said to be of a granitic formation, and the chief rock is gneiss. Varieties of other rock appear, but not on an extensive scale. Coal is found on both banks of the Brahmaputra in large layers. The soil in the plains is rich, consisting of loam, sand, and clay—sometimes of a dark color, and sometimes yellow. On the chur lands along the banks of the Brahmaputra, the soil is frequently of a sandy description. In the hills the surface soil, though of similar description, as in the plains, is shallow on the slopes, but still sufficiently deep to yield fair crops of cereals.

35. Of the 92 per cent. of land which are not under cultivation, the greater portion is under forest, and this being as a rule of an evergreen description gives the country an extremely jungly aspect. The character of the forest in different parts of the country, and under different circumstances, changes considerably. Up to the present the country which is drained by the feeders on the Brahmaputra has been examined, whereas little or nothing is known regarding the forests on the southern slopes of the Naga and Khasi Hills. The following remarks refer, therefore, only to the valley of the Brahmaputra.

36. The number of species of timber-trees found in Assam is extremely large, and in attempting to classify the forests at this moment great difficulties present themselves, as some of the classes resemble each other considerably, although essentially different in many points. The following classification should be considered as a preliminary attempt, to be replaced hereafter by a more distinct description, based on a more detailed knowledge of the forests than is at present available. The forests in Assam then may be divided into the following classes:—

1*st.*—Sal forest.	5*th.*—Lower hill forest.
2*nd.*—Mixed plain forest.	6*th.*—Pine forest.
3*rd.*—Soom forest.	7*th.*—Upper hill forest.
4*th.*—Savannah forest.	

37. The first five classes of forest have a large number of trees in common, but they contain each some particular species which distinguishes them. The sal forests contain, of course, chiefly sal. The mixed plain forest and soom forest are, properly speaking, only different in so far that mixed plain forest which contains soom has been called "soom forest;" in all other respects they are perfectly alike. Savannah forest means grass land with trees scattered over it. The lower hill forest differs from the mixed plain forest chiefly in that the former is rich in bamboos, whereas the latter is poor in them. Moreover, the mixed plain forest is evergreen, whereas the lower hill forest contains according to circumstances, in a higher or lesser degree, deciduous trees, including sal. The pine forests are formed by *Pinus khasya*, and the upper hill forests contain chiefly temperate trees. It will no doubt cause surprise that the so-called caoutchouc forests have not been specially enumerated. The reason is, that there are no real caoutchouc forests as such, the India-rubber trees being scattered generally "in single trees" over the lower hill forests, mixed plain forests, soom forests, and even sal and savannah forests. During his late tour in Assam, the Conservator has never met them more frequently than at the rate of one per mile within 50 yards on either side of the road, or 20 trees per square mile at the utmost.

38. The mixed plain, soom, and savannah forests are found in the plains, the sal forest partly in the plains and partly in the lower hills, the lower hill forests from the foot of the hills to an elevation of about 3,000 feet, the pine

forests from 2,400 to 6,000 feet, and the upper hill forests above 4,500 feet elevation.

39. In Appendix A the more conspicuous trees found in the Assam forests have been enumerated. Of these 29 species have been declared reserved trees, and of these again the following are the more valuable kinds for timber :—

1*st*.—Sal	*Shorea robusta.*
2*nd*.—Sam	*Artocarpus chaplasha.*
3*rd*.—Ajhar	*Lagerstroemia regina.*
4*th*.—Nahor	*Mesua ferrea.*
5*th*.—Poma	*Cedrela toona.*
6*th*.—Titasappa	*Michelia champacca.*
7*th*.—Hurjamu	*Engenia jumbolana.*
8*th*.—Burjamu	„ *mangifolia.*
9*th*.—Gunseroi	*Camphora glandulifera.*
10*th*.—Gomari	*Gmelina arborea.*
11*th*.—Uriam	*Bishopia Javanica.*
12*th*.—Bola	*Marlea sp.*
13*th*.—Koroi	*Albizzia odoratissima.*
14*th*.—Sonari	*Cassia fistula.*

The uses of sal need not be dwelt upon here. Sam is used chiefly for boats, and also for planking; ajhar, for boats and building purposes; nahor, chiefly for posts; poma, for furniture, planking, and tea boxes; titasappa, for boats and furniture; the two species of jamu for building purposes; the rest for the generality of local requirements.

40. The original distribution of the different classes of forest may be described in the following manner:—

Sal Forest.—In Sikkim, the sal forests are found on the lower hills up to 3,000 feet, and in the adjoining plains forming a strip running along the outskirts of the Himalayas. This strip runs through the Western Dooars to the Eastern Dooars, and on approaching Kamroop it becomes of smaller extent, running on to the Durrung district, on the eastern boundary of which it disappears entirely. And again a similar strip of sal-bearing forest runs along the foot and lower part of the northern portion of the Garo and Khasi Hills, and the adjoining parts of Kamroop district, first broad and rich in sal, but in running on to the Nowgong district becoming narrower and poorer as it proceeds towards the east, and dying away near the eastern boundary of Nowgong, almost opposite the eastern limit of the Durrung district. Sal forest is found, therefore, in the Kamroop, Nowgong, and Durrung districts, and along the lower portion of the Garo and Khasi Hills.

Mixed Plain Forest.—This evergreen forest is found in Kamroop, north and south of the Brahmaputra, in patches of greater or lesser extent, and a strip along its northern boundary. Proceeding to the Durrung district, the strip extends into a belt in the same degree as the sal forest disappears. This belt, ranging from 5 to 30 miles in breadth, runs through the Durrung district to the Luckimpore district, up to and round its eastern limits to the Naga Hills near Jaipore, then it fills the greater portion of South Luckimpore and of Seebsaugor. In the eastern portion of Nowgong it forms the Nambor forest, and thence towards Kamroop it runs out into detached blocks scattered over the country.

Where sald isappears in the east of Durrung and Nowgong, naturally grown soom appears, going on increasing in proceeding towards the east. This tree appears always in patches usually of small extent and only exceptionally covering one square mile or more, but within these it is almost always pure. Soom forest then means patches of soom scattered over evergreen mixed plain forest.

Savannah Forest.—The space between the Brahmaputra and the belt of mixed plain forest is, generally speaking, filled up by savannah tracts, in which the cotton tree is conspicuous. The "chur" lands on the banks of the Brahmaputra are likewise occupied by savannah or grass only.

Lower Hill Forest.—This forest occupies the lower hills up to 3,000 feet along the whole northern slope of the Garo, Khasi, and Naga Hills, except where sal prevails to such an extent as to render the tract a sal forest.

Pine forest has been observed in the Khasi and Western Naga Hills, where it is found in the greater portion of the country between 3,000 and 5,000 feet, going down however to 2,400 feet and up to about 6,000 feet. The eastern limit of this class of forest is not known.

41. The mixed plain and soom forests are almost always fully stocked—in fact dense, and very moist. Many of the trees attain a good size. Their most valuable timber is ajhar, sam, and jamu. India-rubber attains a large size in it. A great portion of this forest is under water during the height of the rains. Soom forest is exactly the same as mixed plain forest with the addition of soom. In the lower hill forest the trees attain a finer shape than in mixed plain forest, and its chief timbers are sal, sam, nahor, poma, and tita sappa. The finest India-rubber trees are found here. Unfortunately the greater portion of these forests is continually joomed, whereby their value has been greatly reduced.

42. The sal forests must have been much more extensive in former years than they are now, the present forests representing only what has been left by jooming.

43. The same may be said of the pine forests, which have disappeared from vast areas by the combined effects of jooming and fires. In fact real pine forests are now the exceptoin in the Khasi Hills, whereas the sides formerly occupied by them are covered with grass either without trees or with a very thin sprinkling of them. In a few localities, as for instance in the Kakri valley, magnificent forests are still existing, containing trees with clear stems to 70 feet, but even these are evidently decreasing year after year, owing to the improvident way in which they are treated.

44. The upper hill or temperate forests in the Khasi Hills are found in patches only, especially near watercourses or springs. These patches are in themselves well stocked, but the trees are much inferior in size and stature to those of the temperate forests in Sikkim.

45. Regarding the areas occupied by the different classes of forest, our knowledge is very limited as yet. An estimate has been made by Mr. Mann, the Assistant Conservator who examined the greater portion of Assam, the results of which are subjoined:—

	Sq. miles.	
Kamroop District.		
North of the Brahmaputra	72	
South ditto	50	
	——	122
Durrung District.		
Kaling Boru, Gooma, Koreepara Dooars ...	40	
Chardooar	220	
Nandooar	200	
Chydooar	125	
	——	585
Nowgong District.		
Total area		120
Naga Hill District.		
Total area...		888
Seebsaugor District.		
Forest without soom	250	
Ditto with soom	100	
	——	350
Luckimpore District.		
North of Brahmaputra	940	
Ditto ditto with soom	150	
South of Brahmaputra	1,360	
Ditto ditto with soom	50	
	——	2,500
Grand Total ...		4,565

The foregoing statement does not comprise the savannah tracts. Of the forests in the Khasi Hills no estimate has been attempted.

46. *Inspection of the Jynteah Hill Forests.*—An officer was deputed to examine these forests in August and September 1872. It appears that the greater portion of them has been considerably reduced by jooming. The examination has been, however, of a very general kind; and before we come to any conclusion regarding the value and management of the forests, it will be necessary to institute further and more precise inquiries.

Dacca Division.

47. The present year has added nothing to our knowledge of the forests of this division.

Chittagong Division.

48. The Commissioner and Conservator of Chittagong writes as follows:—

"In the first year of inspection, Mr. Davis inspected the forests between the junction of the Soobalong and Kurnafoolee, as far as Bellasurree, a distance of about 22 miles, and the tract between Kassalong and Khurkorea, about 35 miles, as well as the forests bordering on the Kassalong between those places and those along the Kurnafoolee as far as the Burkhul Falls. He reported the cuttings that have been carried on during past years have told very much on these forests, and timber is very scarce in places where it has been easy to get out, the borders of streams being entirely denuded; whilst further inland, where the woodman has not been able to get out a log, the boat-digger or sawyer has taken his place, and everywhere the most valuable trees have been taken out, whilst the more abundant and fast growing kinds, such as gurjun, are still plentiful. Toon has been nearly eradicated, and other kinds of valuable woods have only just been saved in time. Had unlimited cutting continued for five years longer, I venture to say, mature jarool, chaplis, and woods of a similar class would not have been found in the forests bordering on the Kurnafoolee or Kassalong rivers.

49. "In the year 1871-72, Mr. Davis explored the forests on the Kurnafoolee river and its tributaries, the Renkeong, Soobalong, Kassalong, and Myanee, and also between the Burkhul and Demagiri ranges. His linear valuation surveys showed the existence of considerable quantities of the valuable kinds of timber in the tracts. These surveys extended along 44 miles of forest, equal to an area of 331 acres, in which 750 first class, 695 second class, 1,113 third class trees, and 5,783 saplings, were counted."

50. The inspection made by the Assistant Conservator in the year of report will appear from the following paragraphs quoted *in extenso* from his report:—

"During last cold season the forests on the river Kurnafoolee and its tributaries, Kassalong, Myanee, Soobalong, and Renkeong, were visited and reported on in the last annual report, leaving unknown the resources of the different rivers in the south of the district and the Fenny in the north. Of these, this year those in the south have all been visited, and in addition the forests in the Sillock.

51. "Before moving south, the forests on the Sillock had to be visited and examined with a view to ascertaining their value in regard to the forest produce leases that have been given. There are four blocks, and known as lots Nos. 2, 3, 27, and 28, and comprise about 10,000 acres. Three of them, 2, 27, and 28, are held under settlement by one individual, on an annual rental of Rs. 600. Lot No. 3 was this year applied for by the same party, but a portion of it falling within boundaries given for plough cultivation no settlement was given.

52. "These tracts were visited by me twice during the season, first in November and again in December. The object of the first visit was to test old surveys of the blocks and obtain some idea of their position and contents; on the last, to commence survey of a new lot for which the same party had applied for a 'forest produce lease.' I found the previously surveyed lots fairly correct, considering the heavy jungle through which the survey had to pass in some places. The value of the forests had to be considered from two points—

the timber and their other products, and the means that exist for bringing such to market. Though these forests do not contain sufficient valuable timber-trees to justify my recommending their being reserved, nevertheless there is a fair supply of inferior wood, such as gurjun, jam, and baddee, with a few of the better kinds, dispersed amongst them, and this, leaving out other minor produce, would admit of an assessment far higher than is at present paid, especially as the situation adds considerably to the value of the blocks, which have the Kurnafoolee on one side, and the Silok on another, at no great distance, and the Chittagong market within 25 miles by water. That portion that is nearest the Kurnafoolee can at any time of the year send its produce to market; but it is not so with the Silok side, as this river can only be used for floating during the rains, and hence it is that the sun 'kholas' on its immediate vicinity are of comparatively little value, owing to the sun-grass not being fit to cut before the river falls. The large number of gurjun trees yield a fair return in supplying gurjun-oil, for which each man that taps the trees has to pay the lessees Rs. 2 to 5 per annum. In addition to the above, these tracts produce bamboos, canes, and occasionally dug-out canoes are made in them. Taking all things into consideration, I am of opinion that a fair appraisement would be eight annas per acre, and would recommend, that on expiry of the present lease the lots should be put up to auction, and the right of collecting tax be sold with the above at an upset price.

53. "The survey of the lot applied for this year has been completed, but there is a doubt about the land being situated in the regulation district.

54. "Of the rivers in the south, the first visited by me was the 'Htursa,' up which stream I went as far as the 'Kemee Kheong,' occupying seven days in getting up. The whole of the country has been joomed, and I do not think it possible to bring out more than three or four hundred trees. Nothing in the shape of a forest is now to be seen. From the number of logs lying in the bed of the stream, it would appear that formerly a large quantity of timber was floated down, but that owing to scarcity of water in the stream many logs were abandoned. Other causes may have likewise contributed to their being left where they are, such as the rafts and lashings smashing by the freshes coming down suddenly. On the jooms many trees are to be seen lying and rotting, having been felled solely to avoid their shading the crop. Many of these logs are still of value, and I consider it should be made imperative for them to be brought out before any more living trees are felled.

55. "After returning down the 'Htursa,' I proceeded up the 'Sungoo' to Modhookhong. The stream has sufficient water as far as Tinchee to admit of canoes of about 80 maunds going up; but beyond Tinchee it is full of rapids, and at and above Thendoo the bed is nearly blocked up with immense boulders, and it is remarkable that from this point the stock of valuable timber-trees increases in the same ratio as the difficulty of getting the timber to a market increases, and probably for the same reason. There is another cause to which the richness of the forests here may be attributed, and that is, that the Mughs do not joom in this remote locality for fear of the wild tribes, and the few jooms that there are, are those of the Kumees and Mroos.

56. "From Modhoo I left the Sungoo and marched across to the Kolladyne and back, taking three days going and returning. My motives for going were, first, to ascertain the comparative values of the forest in the different districts; and secondly, to ascertain whether the teak or caoutchouc-trees grew in this direction. With regard to their comparative values, those on the Kolladyne side were far superior in point of stock, whilst in value they are simply without any market; and this alone will account for the existence of so much timber, whereas the great demand and consumption in Chittagong has reduced our forests partly to their present state, and I have doubt but that our forests were originally as well stocked, and that natural reproduction has not been able to keep pace with the constant jooming and cutting. There is no difference whatever in the kinds of timber-trees of the two districts.

57. "On returning from the Kolladyne, I retraced a portion of my way along the Sungoo to Tinchee, and from there struck across the Yamboug Tong,

and descended into the 'Llama,' following its course to where it empties itself into the Matamoree. From the summit of Yamboug a magnificent view of the surrounding country and forests can be had, comprising at a glance many miles of country showing clearly the various timber-clad parts and jooms, conveying a far better idea generally of the contents of the forests and their distribution over the country than it would be possible to obtain by passing through only portions of it. To travel over the whole country, if possible, would take years.

58. "On the Llama there is very little timber of any value, and the river bed a little above Thung Lowen Roa is one mass of boulders and utterly impossible for boats or rafts.

59. "Up the Matamoree, I went eight days' journey beyond its junction with the Llama, and after passing the Lagada, on the fourth day got into fair timber country, and obtained valuation surveys in one or two places, where the features of the country admitted of such; but as a rule there is great difficulty in holding valuation surveys in these hills. Owing to the dense under-growth it is a matter of considerable trouble to get into most places, and when once in it is very often impossible to get out, except at the spot where you enter. The hills being mostly broken and their sides being precipitous, it is impossible to get out by descending elsewhere, and the only course is to find an elephant track, but this again frequently only leads through bamboos and grass jungle. Putting all these natural obstructions aside, the branches and leaves of the trees in the forests interlace so much, it is difficult to say to which trunk they belong, and the matter of distance from the line of survey has to be decided purely by guess-work, as it is very often impossible to get near enough to the tree, either to measure the distance or its circumference; so that, on the whole, I am inclined to think that these linear surveys are calculated more to mislead than to give any accurate idea of stock in mixed hill forests.

60. "After exploring the Matamoree valley to the utmost extent possible, I crossed over the Mraing Tong range and marched along the Phalaing Kheong, following its bed to where it joins the Pawah or Bagkhallie, and then to Gurjunia and Ramoo. The country drained by the Bagkhallie is nearly destitute of valuable timber, the whole of it having been cleared away by jooming. From many of the peaks and ranges along the line of march the whole of the country lying below could be seen, and both old and new jooms were distinctly discernible, covering nearly the whole country.

61. "From Ramoo I returned to my standing camp at Chundergonah by the sea-face, having been away sixty days and over 400 miles. To sum up briefly, it will be seen that owing to heavy cutting to supply the market and to admit of jooming, our forests have been cleared away, and we have only two left of any value, one on the Sungoo commencing at Thendoo, and the other on the Matamoree beyond the Lagada. A glance at the maps of the district will show the remoteness of these localities, and it will then be understood, further on, why I condemn the idea of forming reserves."

Patna.

62. The Patna, Shahabad, and Gya districts, forming the southern half of the Patna Commissionership, have been visited during the year by the Conservator of Forests. The soil in these districts is mostly of alluvial origin, except where rocks crop out, which latter consist of metamorphic formations, chiefly gneiss. The area of these districts, with the exception of a fringe of land adjoining the Palamow sub-division, is occupied by cultivation, interrupted by groves of trees here and there. These, usually called mangoe groves, are mostly arranged round the villages. Besides the groves, trees have been planted extensively in all larger stations and along road-sides. The species met with are chiefly the following:—

Am (mango)	*Mangifera Indica.*
Imli (tamarind)	*Tamarindus Indica.*
Several kinds of palm-trees.	
Several species of fig-trees, as—	
Bar	*Ficus Bengalensis.*
Pipli	*Ficus religiosa.*

Pakkar	*Ficus rumphii.*
Guler	*Ficus lencocarpa.*
Sirris	*Albizzia sp.*
Babul	*Acacia Arabica.*
Sissu	*Dalhergia sissoo.*
Nim	*Melia azadirachta.*
Agas	*Alelia azedarach.*
Bel	*Aegle marmelos.*
Ber	*Zizyphus jujuba.*
Toon	*Cedrela toona.*
Mahua	*Bassia latifolia.*
Karanji	*Pongamia glabra.*
Paras	*Butea frondosa.*
Jamun	*Engenia jumbolana.*
Lesura..	*Cordia mixa.*
&c., &c.	

An estimate of the area occupied by groves or trees generally is not available, but it is only a small portion of the total. The fringe of jungle or forest land in the south-west of the Gya and Shahabad districts appears to be of a description similar to that on the adjoining portion of Palamow, which will be described further on.

63. Of exotic trees, there are three kinds which demand attention. Teak is found at Bankipore, Arrah, Gya, Sherghotty, on the road between Gya and Sherghotty, and on the Grand Trunk Road from Sherghotty towards Burhee, about four miles from the former place. Of mahogany there are several trees at Bankipore, and of *Ficus elastica*, one specimen has been found at the same place.

64. The abovementioned tress are partly prized on account of their fruit, and the wood of all of them is used for domestic purposes. Exported is only mango wood in the shape of opium chests, for which purpose several hundreds of tons are required per year. Large timber is imported, the sal coming from Nepal and partly from Palamow, and teak from Burmah. Small timber and timber of inferior quality is derived from the trees growing in the districts, and imported in large quantities from Palamow. The latter is usually of a girth averaging 2 feet, and from 12 to 15 feet in length. It is cut in the forests situated in the north of Palamow, and dragged and carted far into the Gya district. Bamboos are imported in moderate quantities in the same manner. The chief supply of bamboos for Gya, Patna, and Shahabad, however, is cut in the forests situated in the south-east of Palamow, and floated down the Koel, Soane, and Ganges rivers, as far as the town of Patna.

65. Wood fuel is not available in sufficient quantities; it is used in the southern parts of Gya and Shahabad to a good extent, but over the greater portion of the area dried cow-refuse is the material principally used. At present this state of affairs does apparently not indicate a hardship, as the custom of burning cow-refuse is very old, and as the people seem to prefer it to wood: indeed, the Conservator has seen the former used in localities where wood fuel was to be had within a few hundred yards. Another question, however, is whether it will not become a hardship. Agriculture is progressing, and the failure of the opium crops has of late called for a searching investigation as to its causes. If it should be found that one of them is the exhaustion of the ground, cow-refuse will have to be applied to its legitimate use to manure, and the want of fuel will then be deeply felt. But, even apart from the opium question, the time will come when cow-dung will be used for the manuring of all lands under cultivation, and the question of providing fuel will have to be considered.

66. The Patna division is the chief source of opium, and the amount of revenue derived from it by Government, as far as that district is concerned, must be some four millions of pounds. The cultivation of the drug occupies of course large areas, which cease to be available for the local requirements of the people. Moreover, the ryot or zemindar obtains only a portion of the profit derivable from the sale of the opium, whereas the greater portion of it goes to the State. If, therefore, any district in India is entitled to look forward to Government for measures to prevent a dearth of fuel and timber for local purposes, it is the Patna division.

67. At present the great difficulty is to obtain land, as almost none belongs to Government. Moreover, the returns from cultivation are high, and it would require a considerable outlay of money to buy blocks for forest purposes where they are most required. In the vicinity of Sherghotty land of an inferior quality seems to be obtainable. There are some tracts of waste land on both sides of the Grand Trunk Road towards Burhee which are now covered with low jungle, chiefly of asan (*Terminalia tomentosa*), khair (*Acacia catechu*), and sakwa-sal (*Shorea robusta*). The soil is of a dry and sandy description, and the jungle now growing on it does not look promising. But, on the other hand, this is explained by the fact that every shoot fit to yield a rafter is immediately cut down for local use, and moreover the trees planted along the Grand Trunk Road show very fair growth. I am of opinion, therefore, that trees will do fairly well on the tracts under consideration. The owners of the land are said to be the following zemindars:—Sheik Nassar Ali, Narkoo Sing, and Sooamar Sing. When the question of plantations in Behar is seriously taken up, it will be necessary to institute a more detailed examination of the districts than has been practicable during the past season.

Palamow.

68. Palamow consists of the broken ground formed by the spurs running from the Chota Nagpore plateau towards the Gangetic plain. There are chiefly two ranges of hills to be noted, one running from the southernmost point in a north-westerly direction, near the south-west boundary of the pergunnah towards the Soane, and a second coming from the Hazareebaugh district and running parallel with the former, near the north-east boundary. From these ranges an endless number of spurs radiate, and in addition isolated hills and small ranges are found which, with the intervening valleys, produce the broken and hilly character of the country.

69. The two rivers which drain Palamow are the Koel and Kunhur. The latter forms the south-western boundary of the district, and as a range of hills runs immediately to the north-east of it, the area thus drained is but small. The Koel, on the other hand, runs right through the centre, from the south-eastern boundary to the Soane on the north, thus draining almost the whole of the country. It has two main feeders, the Amanut and Aurunga. With the exception of an obstruction near the village of Sigsigi (easy to remove), the Koel is open for timber-floating operations from its junction with the Aurunga, about 9 miles above Daltongunj, down to the Soane. Above that point it is obstructed by boulders and rocks. No reliable data are available regarding the Amanut.

70. The rock in the north-western half of the pergunnah from Daltongunj to the Soane is said to be chiefly sandstone. The substratum of the south-eastern half is gneiss, which appears on the surface in large blocks on all the upper ranges and on steep slopes. On the undulating ground the gneiss is covered by lateritic formations, by ferruginous clay and loam.

71. Palamow, like most other countries, was originally covered with forest, which has given way to cultivation in the more favorable parts. With the exception of the level portions, however, the jungly aspect has nowhere been removed, and, as a rule, limited blocks of cultivated land (amounting to one-eighth of the total area) are imbedded in extensive tracts of jungle and forest. The composition of the latter differs according to elevation and other circumstances. In Appendix B the trees observed have been enumerated. This list comprises 71 species; but there is no doubt that the actual number will, on a more detailed examination, be found near 100, although most of the important trees have been mentioned.

72. Almost all the trees enumerated are found under all the different conditions in the pergunnah; but if the greater or lesser frequency is taken into account, three distinct classes of forest or jungle may be formed, namely—

1. Lower mixed forest.
2. Sal forest.
3. Upper mixed forest.

The most characteristic trees of the lower mixed forest are—

Khair	...	...	*Acacia catechu.*
Paras	...	...	*Butea frondosa.*
Asan	...	...	*Terminalia tomentosa.*
Ber	...	...	*Zizyphus jujuba.*

In the sal forest the proportion of sal is so great that all other species become comparatively unimportant. Of the latter the following are chiefly characteristic:—

Piar	...	...	*Buchanania latifolia.*
Belawa	...	...	*Semecarpus anacordium.*

The upper mixed forest contains the greatest number of species, of which the following are most characteristic:—

Salai	...	...	*Boswellia thurifera.*
Thauta	...	...	*Anogeissus latifolia.*
Gamhar	...	...	*Gmelina arborea.*
Then	...	...	?
Kien	...	...	*Diospyros tomentosa.*
Garohan	...	...	*Soymida febrifuga.*
Guler	...	...	*Ficus lencocarpa.*
Ginyan	...	...	*Odina wodier.*
Kusum	...	...	*Scheichera trijuga.*
Galgal	...	...	*Cochlospermum gossypium.*
Baus (bamboo)	...	...	*Bambusa stricta.*

73. The distribution of the forests may be described in the following manner. The lower mixed forest occupies the lower portion of the area up to an elevation of about 1,000 feet. The upper mixed forest appears always where rocks appear in large masses on the surface, that is to say, on the upper part of the ranges and on steep slopes. The sal forest appears, generally speaking, between the two, that is to say, it occupies the undulating ground down to where the lower mixed forest begins. There is however a territorial limit to the appearance of sal forest. It is, according to report, not found north of Daltongunj. Between Sherghotty and Daltongunj the Conservator has observed none, except one small patch near the bank of the Amanut. In proceeding from Daltongunj towards Barasand, the first sal forest found is situated near Hurnomand, distant 21 miles, and at an elevation of about 1,000 feet. From this place it occupies all the undulating ground up to Barasand, and down again close to Latiahar, at an elevation of about 800 feet, in approaching which place it disappears gradually, being replaced by lower mixed forest. The latter continues for about 15 miles until the ground begins to rise again towards the Chota Nagpore plateau, where sal forest appears again, covering the undulating ground as far as Hazareebaugh. It appears thus that the north-western limit of the natural sal forests in Palamow is indicated by a line drawn from Hurnomand in a north-easterly direction on one side and a north-westerly direction on the other.

74. Taking the forests as a whole, the following are the trees found in the largest numbers:—

Khair ...	...	...	*Acacia catechu.*
Sal ...	...	...	*Shorea robusta.*
Paras ...	...	...	*Butea frondosa.*
Salai ...	...	...	*Boswellia thurifera.*
Asan ...	...	...	*Terminalia tomentosa.*
Mahua	...	...	*Bassia latifolia.*
Sida ...	...	...	*Lagerstrœmia parviflora.*
Ber ...	...	...	*Zizyphus jujuba.*
Beri ...	...	...	*Cascaria tomentosa.*

and the several species of *Ficus.*

75. The forest products of Palamow are very numerous, and the Conservator confines himself to mentioning the more important articles. As timber, sal takes the first place. It is used for an endless variety of purposes. Next comes kusum (*Scheichera trijuga*), an extremely hard wood, used for rice-pounders, oil-presses, sugarcane-crushers, &c.; kien (*Diospyros tomentosa*), a kind of ebony; thauta (*Anogeissus latifolia*); kahua (*Terminalia glabra*); asan (*Terminalia*

tomentosa); then (?) ; sida (*Lagerstrœmia parviflora*) ; karam (*Nauclear cordifolia*) ; imli (*Tamarindus Indica*); gamhar (*Gmelina arborea*); bel (*Aegle marmelos*); ginyan (*Odina wodier*) ; piar (*Buchanania latifolia*); porsar (*Cassia fistula*); and bans, or bamboos, are prized above others for domestic purpose.

76. The export of timber is chiefly of three different kinds. Large sal timber is transported from the forests around Barasand, partly by land and partly by water, down the Koel to Dehree, for the Soane canal works; secondly, small timber averaging in girth 2 feet and in length 12 to 15 feet, as well as bamboos, are carried from the range on the north-east into the Gya district; thirdly, very large quantities of bamboos are cut in the forests around Barasand, and transported down the Koel to the Shahabad, Patna, and Gya districts. Nothing is known regarding the quantities exported per year.

77. The mahua (*Bassia latifolia*) is found in large numbers all over the district, and enormous quantities of the flowers are collected for food and for the preparation of spirit. Ber (*Zizyphus jujuba*) is also found over extensive areas, and its fruit is collected for food.

78. Catechu is extracted from the wood of khair (*Acacia catechu*). The amount prepared annually is estimated at 3,500 maunds, but there are some doubts regarding the correctness of this estimate. The tussur silk-worm feeds on the leaves of the asan (*Terminalia tomentosa*), and it is estimated that from eight to ten lakhs of cocoons are collected yearly, which, as a rule, find their way to Mirzapore and Benares. The right to collect catechu and silk, known in Palamow as "koa kuth," is leased out annually; and during the year 1872-73 it realised Rs. 1,130. The produce thus sold is about two-thirds of the total outturn, the remaining one-third being the property of jaghirdars.

79. The lac insect appears on three species of trees in large quantities, namely, kusum (*Scheichera trijuga*), paras (*Butea frondosa*), and pipur (*Ficus religiosa*), especially on the two former. About 5,400 maunds are said to be collected annually, but Government derives no revenue from it at present.

80. Resin, or dhuna, is collected from the sal tree, for which purpose the largest trees are killed. The amount of resin collected per annum is supposed to be some 300 maunds. No revenue is derived from this source.

81. Bullocks and cows graze free of charge on the Government lands. For buffaloes a payment of three annas per head has to be made. The returns to Government up to date have been very small, for want of control.

82. The lower mixed forest contains no middle-sized or large trees whatsoever except those preserved for the fruits' sake; as for instance mahua (*Bassia latifolia*), and here and there a few useless as timber. This condition has been brought about by the following circumstances:—

1st.—Cutting for local use and for export.

2nd.—Cutting of khair (*Acacia catechu*) for the fabrication of cutch or catechu.

3rd.—Jooming. For this purpose large areas are cut every year as soon as the shoots or trees are a few years old. In most cases the jungle of a large tract is collected on a comparatively small spot, which is cultivated after the wood has been burnt. In this manner the jungle on at least 5 to 10 acres is cut for the purpose of cultivating one acre of land.

83. In the upper mixed forest, large and mature timber is still found in the more removed tracts. Near the lines of communication and along the border of the Gya district, no (or very little) large timber is found, except such as is useless. In some parts jooming is carried on, but the areas fit for it are limited.

84. All the more accessible sal forests have been worked out some time ago, and they contain now hardly anything but shoots from old stumps, of a girth up to one and a half or two feet at the utmost. Seedlings are extremely rare, simply owing to the fact that there are no seed-giving trees. Some less accessible sal forests, chiefly in the vicinity of Barasand, contain still a little mature

timber, but very few living large trees. The Conservator, on his journey from Daltongunj to Barasand and Latiahar, passed through sal forests extending over a length of 34 miles, and he is quite sure that he has not seen, as far as the eye could reach on either side, a hundred living sal trees of five feet girth and upwards. Dead trees of considerable girth are more frequent, and from a spot between Garoo and Sirjoo the Conservator counted 130 large dead sal trees within a circle of about half-a-mile. These trees have almost all been killed for the sake of the resin, to obtain which they were girdled. From inquiries it appears that the value of the resin obtainable from a full-grown tree is about half an anna, and for such a trifle perhaps 50 to 100 cubic feet of timber are sacrified. After another few years there will not be a single large sal tree found alive, and natural reproduction will be completely stopped for want of seed. Jooming is carried on to a good extent in sal forests, and some of the old trees have been killed by the cultivators' fires.

85. A portion of the old timber has been removed for the Soane Canal works; it is carted some 20 to 25 miles along a rough and difficult road, or rather track, to the junction of the Koel and Aurunga, whence it is floated to the Soane. The timber now lying on the banks of the Koel is all unsound, almost all the pieces being hollow, or at least diseased, in the centre. The Conservator is not in a position to explain this fact to a certainty, but he thinks the unsoundness is due—

1st.—To excessive jungle fires during the infancy of the trees.

2nd.—Excessive tapping for resin.

3rd.—It is believed that the trees now remaining are those which were originally inferior than the rest, all the better trees having been cut and removed first.

4th.—It is not unlikely that the Public Works contractors have removed the trees found in the more accessible places, whereas better trees may still be available in more remote spots.

86. Young trees, or shoots from old stumps, are cut in large numbers, wherever available, for domestic purposes including firewood; in fact, in some parts the people burn nothing but young shoots of sal, of which they keep always a good supply near their houses.

87. The Palamow district is very favorable for the growth of sal. There are still sufficient proofs to show the excellence of the timber formerly produced. The measurement of a few old trees is as follows:—

1st.—Between Cheepadohur and Hurree, a tree of 8 feet in girth at 4 feet from the ground.

2nd.—Between Hurree and Barasand, a tree of 5 feet 3 inches girth, and a bole almost perfectly straight and regular up to 60 feet.

3rd.—Between Barasand and Garoo, a tree of 10 feet 10 inches girth, and a bole 45 feet long, quite straight, and apparently perfectly sound.

4th.—In the same place, another tree of 11 feet 6 inches girth; the latter is divided at 7 feet from the ground into two branches, each of which showed a girth of 6 feet, and a straight and sound bole about 30 feet long.

5th.—Between Garoo and Sirjoo, a tree of 8 feet 3 inches girth, and a bole 40 feet long, a beauty in shape, perfectly straight and sound.

Considering that these trees are surrounded by extensive tracts of small sal, there is no doubt that excellent sal forests can be produced by protecting certain areas against cutting and fires. If this is done, seedlings will spring up as soon as seed becomes available, and in the meantime fair sized timber will be produced from the shoots of the old stumps. Of the latter there can be no doubt, as here and there shoots are found which have escaped the axe, and grown into fairly promising young trees.

88. Twenty-eight blocks of land in Palamow have been set aside for forest purposes. The subjoined statement gives an abstract of the areas:—

Name of Tuppah.	Area in Acres.
1. Bari	25,812
2. Seemah	25,079
3. Barasand	24,016
4. Khami	7,406
5. Doorjag	13,174
6. Punday	17,688
7. Kote	822
Total ...	113,997 acres,

or 178·12 square miles. These tracts are all situated in the southern half of Palamow, that is to say, in the sal district. As soon as the revenue survey sheets become available, the forests will be marked off, and a detailed list of the areas prepared.

89. In comparing the area of these tracts with the total area and the number of inhabitants, the following data are obtained:—

Area of Palamow	4,260 square miles.
Population	366,519
Area of Government forest tracts, 113,997 acres, or	178·12 square miles.
Proportion of Government forest tracts to total area	4 per cent.
Area of Government forest tracts per head of population	·3 acres.

The area under cultivation in Palamow amounts, roughly estimated, to about 15 per cent. of the total area; whereas 85 per cent. are jungle and forests or waste. The extent of the Government forest tracts is therefore small.

90. The Government forests set aside contain the three different classes of forest described above, but it is not known in what proportion. The Conservator has passed through several of the blocks, and he found that they present the same conditions as the remaining jungle lands, that is to say, they are in the same reduced condition. At present only a small portion of the total area of the pergunnah is under cultivation, but it appears that a steady tide of immigration has set in, and that cultivation is rapidly extending. Considering that the forests have been exhausted already, there can be little doubt that forest material will become scarce, even in a country like Palamow, if the population continues to increase. It will be necessary, therefore, to bring the forest blocks under regular management, and proposals to that effect are now before Government.

Hazareebaugh.

91. The Conservator's tour through a portion of this district was very rapid. From what he has seen it appears that the geological formation, as well as the forests, resemble those of the southern half of Palamow. The upper hill ranges consist chiefly of gneiss, and on the undulating ground the surface consists of ferruginous loam and clay. Upper mixed forests cover the hill ranges and steep slopes, and sal forests the undulating ground. Of lower mixed forest he has seen very little, which is explained by the fact that the Hazareebaugh district may be said, generally speaking, to be situated at an elevation of about 2,000 feet above the sea.

92. The chief object of the short tour through the district was to obtain some information regarding the question whether sal will grow large in it. The forests of sal consist throughout of shoots from old stumps, which are constantly cut over as soon as they are fit for local purposes. Moreover, the people burn almost nothing but young sal shoots a few inches in circumference. In some places on tracts of limited extent the shoots are allowed to reach a somewhat larger girth, and whenever such is the case they grow up into promising young trees; but even in these cases they fall under the axe before they reach a girth of three feet.

93. On the march from Latiahar on the Palamow frontier to Hazareebaugh, a small number of really large sal trees is met with, which proves what excellent timber may be produced if certain tracts are protected against cutting. The village of Balumath is surrounded for miles by sal, containing only small shoots; but near the opium factory is a small grove of trees which has been protected against cutting, and of which the Conservator has taken measurement, thus obtaining the following results :—

Number.	Girth at four feet above the ground.	Length of bole.	Estimated cubical contents of bole.	REMARKS.
1	9′ 11″	25′	125	Straight.
2	6′ 6″	35′	52	Ditto.
3	17′ 7″	6′	176	Badly shaped, divided into branches at 6 feet from the ground. One branch shows girth 10 feet; length of bole 15 feet.
4	18′ 3″	40	250	Falling off considerably in girth in upper part. Stem knotty, owing to former large branches.
5	7′ 8″	20′	45	Above 20 feet divided into two branches.
6	7′ 2″	30′	60	Straight.
7	6′ 11″	30′	45	Ditto.
8	5′ 10″	35′	35	Ditto.
9	5′ 0″	45′	36	Ditto.
10	4′ 1″	50′	25	Ditto.
11	4′ 5″	30′	20	Ditto.
12	4′ 2″	45′	22	Ditto.
13	4′ 3″	40′	20	Ditto.
14	3′ 4″	50′	15	Ditto.
15	4′ 6″	40′	22	Ditto.
16	3′ 10″	45′	18	Ditto.
17	3′ 7″	45′	15	Ditto.
18	5′ 8″	40′	40	Ditto.
19	5′ 10″	40′	42	Ditto.
20	8′ 4″	6′	35	Divided into two branches at 6 feet from the ground, each branch 3 feet 6 inches girth, and boles of 10 feet and 25 feet long respectively.
21	4′ 10″	30′	24	Straight.
22	5′ 1″	35′	30	Ditto.
23	6′ 0″	20′	28	Nearly straight.
24	5′ 8″	35′	35	Straight.
25	8′ 3″	11′	54	Divided into three branches at 11 feet from the ground. The branches give two boles 3 feet 6 inches in girth and 10 feet long each.
27	6′ 1″	25′	35	Straight.
26	8′ 0″	28′	60	Ditto.
28	9′ 1″	....	....	Divided at 7 feet into two branches; no good boles.
29	6′ 8″	40′	60	Straight.
30	3′ 7″	30′	12	Ditto.
31	4′ 7″	35′	24	Ditto.
32	4′ 1″	35′	18	Ditto.
33	4′ 5″	35′	22	Ditto.
34	4′ 7″	40′	27	Ditto.
35	7′ 1″	15′	44	At 15 feet divided into two branches, giving two small boles of 3 and 4 feet girth and 15 feet long.
36	8′ 8″	30′	80	Straight.
36	....	....	1,651	
Average per tree		..	45·9	

These 36 trees stand on an area of exactly one acre, which they occupy only partly in company with a number of other trees. If the area was completely stocked, it would contain at least 60 trees with a content of timber amounting to 2,752 cubic feet.

94. At a village called Jaree, four miles east of Balumath, another grove similar to that at the latter place is found, of which, however, no measurement

has been taken. Between Tandwa and Chipa, near a village called Koteway, the Conservator found on the edge of a sal forest of the usual reduced description, one large tree of 6 feet 10 inches girth with a bole of 30 feet, yielding a good piece of timber. This tree has been preserved either by accident, or more likely to afford shade to cattle and men, the land around it being under cultivation. A portion of the latter had evidently been lying fallow for one year, and on it were found a large number of sal seedlings, about 12 inches in height, grouped around the old tree, thus proving the facility of natural reproduction of sal if not interfered with. Near the village of Banandar, three miles west of Hazareebaugh, one old sal tree of six feet in girth was found in a grove, the village being surrounded by sal forest of the usual description.

95. The above data show that it rests entirely with us to produce large sal timber in the Hazareebaugh district. The present forests consist all of shoots from old stocks, and the absence of seedlings is due to the absence of seed-giving trees. It is true that sal begins very early to flower, but it appears that the seed produced by very young trees is not capable of germinating, a circumstance common to most timber trees (teak is one of those which makes an exception of this rule).

Sunderbuns.

96. The question whether the forest produce extracted from the Sunderbuns should be subjected to a royalty has been before the Government for some time. In order to obtain some information regarding the forests, Mr. A. L. Home, Deputy Conservator of Forests, was despatched to examine them during the last working season.

97. The northernmost portions of the Sunderbuns have partly been leased out and partly are held in fee simple. These tracts may be said to form a strip of land between the settled country and the Government Sunderbun forests. The latter consist of the following areas:—

In the 24-Pergunnahs	...	... 1,723 square miles.
„ Jessore district	...	... 1,266 „
Backergunge	...	... 29 „
	Total	... 3,018 square miles.

Mr. Home had visited the tracts in the 24-Pergunnahs and a portion of those in the Jessore district, when, owing to one of the laborers being carried off by a tiger in broad daylight, and in the immediate presence of the whole working party and of Mr. Home himself, the men struck work, forcing him to return. At the same time the season was so far advanced that a new expedition could not be organized.

98. The Sunderbuns, it appears, are covered with dense and, in almost every case, impenetrable undergrowth of goran (*Ceriops Roxburghiana*) from six to twelve feet high, mixed with seedlings and saplings of the larger trees noted in Appendix C prepared by Mr. Home. Over this undergrowth a more or less thick growth of mature trees is scattered, and the whole is frequently intermixed with heavy creepers, which in many cases attain a girth of ten to fifteen inches, crushing down the young trees on which they rest. In some parts clumps of hartal (a palm) forms the undergrowth, which attains occasionally a height of sixteen to twenty feet.

99. The trees, it appears, do not attain a great size, five feet girth being exceptional, and the maximum height being fifty feet. Most or all the trees are used for firewood, and many, especially,—

Soondree	*Heritiera littoralis,*
Gengwa	*Excœcaria agallocha,*
Bani	*Avicennia tomentosa,*
Keowra	*Sonneratia apetala,*
Kolsha	*Aegiceras corniculata,*
Poshoor or pussur	*Carapa obovata,*
Shingr	*Cynometra bijuga,*

for building and other purposes. The most important of these is soondree, a scented, durable, and tough wood. It is cut in lengths from eight to twenty-five feet, and used for beams, buggy shafts, planks, boat-building, paddles, posts, and furniture, occasionally for masts and rudders. This tree is found of good size, in the compartments east of the Arpungasee, which forms the boundary between the 24-Pergunnahs and Jessore, whereas only trees of stunted growth are found west of that river.

100. Regarding the quantity of growing material, Mr. Home shows that the forests in the 24-Pergunnahs examined by him contain the following quantities of the seven best kinds of trees :—

Mature trees	5 per acre.
Middle sized	177 ,,
Saplings	896 ,,

No opportunities for ascertaining the rate of growth presented themselves, but the men employed in wood-cutting, and others, estimate the time necessary for the reproduction of soondree poles of fifteen to twenty-four inches circumference at eight to ten years. Assuming that twenty years are required to reproduce the forests in their present condition, then the area available per year for cutting would amount to 3,018÷20=151, or in a round figure, 150 square miles, containing the following material :—

Mature trees	480,000
Middle sized	16,992,000
Total ...	17,472,000 trees,

which in weight would give, at the very least, 20,000,000 maunds of serviceable material, without counting the saplings at all.

101. It has been found impossible to ascertain the actual quantities removed annually. Those which passed the canals and those transported by the railway are given at 8,278,464 maunds. As this is the supply of Calcutta and the adjoining district, the total quantity is not likely to reach 15,000,000 maunds, and under the circumstances it appears that the Sunderbuns will be well able to furnish the present outturn without any special interference. From this the soondree tree should be exempted, however, as we have not sufficient data to judge of the quantities available. Great quantities are said to grow in the more eastern compartments not visited by Mr. Home.

102. The question to be dealt with is therefore, for the present, of a financial nature only, that is to say, to raise a revenue. For this purpose Mr. Home proposes to establish about 25 toll-stations, situated so that the boats must pass one or the other in going and coming. Wood-cutters proceeding down take out a license by paying at a fixed rate, according to the size of the boat and the kind of produce they intend to bring out. On the return journey they have to give up the license at whatever station they pass, and a release receipt would be given to them to enable their passing other stations. The stations chosen, it will be observed, are situated north of the blocks leased out and held in fee simple, consequently Mr. Home proposes that the owners of the latter should be forced to issue passes to any wood-cutters who cut in their lots. It appears that there are great difficulties in putting the licensing stations outside the leased blocks, as there is neither sweet water obtainable, nor are provisions to be got except from long distances. Mr. Home makes no proposal regarding the amount of royalty to be levied, but he mentions the rates in force when the forests were leased to the Port Canning Company, which were as follows :—

Timber of all kinds ...	Rs. 8	per 100	maunds.
Firewood	,, 2	,,	,,
Thatching materials ...	As. 12	,,	,,
Shells for lime	Rs. 4	,,	,,

The effect produced by this tax on the price of firewood in Calcutta in 1867-68 amounted to 10 to 18 per cent. of the previous price. At the present moment the price of firewood ranges from Rs. 8 to 33 per 100 maunds, or about Rs. 20 on the average. This is equivalent to about three annas two pies per maund. A royalty of Rs. 2 per 100 maunds would add a little less than four

pies per maund, or about 10 per cent. of the present sale price. From personal inquiries in the Calcutta bazars, it appears that the small consumer has usually to pay from six to eight annas per maund, owing to the fact that the fuel passes through several middlemen, instead of being bought direct from the larger depôts.

103. It will rest with the Government to decide whether a royalty is to be levied from the forest produce in the Sunderbuns, and if decided in the affirmative, a system similar to that proposed by Mr. Home might be introduced. The rate to be levied, however, should be uniform, and Re. 1-8 per 100 maunds of produce of whatever description may be found adequate. This would bring in a revenue of at least Rs. 1,75,000. The establishment necessary for the eighteen stations proposed by Mr. Home would involve a cost of Rs. 2,883. To this the cost of several additional stations in Jessore and the allowances to officers must be added, making on the whole an expenditure of, say, Rs. 4,000 per month, or Rs. 48,000 per year, and leaving a surplus of Rs. 1,27,000. If the uniform rate was fixed at Rs. 2 per 100 maunds, the net revenue would come to close on two lakhs of rupees.

SECTION II.

Reserves.

104. The area of reserved forests in Bengal has been given in the Inspector-General of Forests' last yearly report as 1,546 square miles. The Conservator of Forests is not aware how this figure has been obtained; at any rate such an area of reserved tracts does not exist. On the 1st April 1872 the total area amounted to 105·3 square miles, all situated in Sikkim. During the year under review an addition of 214¼ square miles was made in Assam, and 342½ square miles more have been selected in Assam and the Western Dooars, but not yet gazetted.

Cooch Behar.

105. *Sikkim.*—The reserves were gazetted as such in 1865, but up to the beginning of this year neither the exact areas had been ascertained, nor were maps available. From the atlas sheets in the Deputy Commissioner's office it has been ascertained during the year that the area of the reserves in Sikkim amounts to 105·3 square miles, exclusively of a tract of country in Daling, the area of which could not be ascertained. The Conservator immediately after taking charge drew up detailed instructions, according to which the several tracts should be examined, and Mr. Gamble commenced the work on the 24th January 1873 in the Mahanuddy terai range. Up to the end of the working season he has examined 8,404 acres, and as this work, though not quite complete, may serve as a sample to other officers, the Conservator has appended it in full to this report as Appendix D, restricting himself here to the following extract.

106. The area examined is covered as follows:—

With sal forest	4,705	acres.
,, khair and sissu forest	895	,,
,, mixed plain forest	270	,,
,, savannah forest	2,534	,,
Total ...	8,404	acres.

The range is bounded on the north by the Darjeeling hill territory; on the west by the Darjeeling cart road; on the east by the Teesta river; and on the south by tea estates, other cultivated land, and the Byeuntpore forest belonging to the Rajah of Julpigoree. It forms, therefore, a strip of land about nine miles long and one-half to two miles broad, running along the foot of the hills. The surrounding people have no rights in the forests. A few small villages have been established inside at the pleasure of the forest authorities, the inhabitants of which are allowed to cultivate small areas in the savannah

tracts. The outlets for timber are the Mahanuddy to Silligoree and thence to the Ganges, and the Teesta to Julpigoree and to the Brahmaputra. The more valuable timber trees are the following:—

In the sal forests—

Sal	*Shorea robusta.*
Chalownee	*Gordonia Wallichii.*
Saj	*Terminalia glabra.*
Sitsal	*Dalbergia latifolia.*
Toon	*Cedrela toona.*

In the khair and sissu forest—

Sissu	*Dalbergia sissoo.*
Khair	*Acacia Catechu.*

In the mixed plain forest—

Sal	*Shorea robusta.*
Toon	*Cedrela toona.*
Saj	*Terminalia glabra.*
Chalownee	*Gordonia Wallichii.*
Katoos	*Castanea sp.*
India-rubber tree	*Ficus elastica* and *obtusifolia.*

The quantity of growing material is calculated as follows:—

Name of Tree.	Trees Available.				
	2-3 cubits 3' to 4' 6" girth. Young trees.	3-4 cubits 4'6" to 6' girth. Trees.	Above 4 cubits Above 6' girth. Old trees.	Mature.	Seedling.
Sal	27,814	5,360	734	.....	.....
Chalownee	320	177	214	.....	.....
Saj	1,340	867	530	.....	.....
Sitsal	85	24	.....	.....	.....
Toon	47	43	28	.....	.....
Katoos	185	43	28	.....	.....
Sissu	1,825	297	17	.....	.....
Khair	2,499	170	.....	.....	.....
India-rubber	.....	.....	.....	14	71
Total	34,115	6,981	1,551	14	71
Grand total of timber trees ...	.....	42,647	.....	.....	.....

The seedlings and saplings under 3 feet girth are very numerous, especially those of sal.

107. This work will be continued next season in the Mahanuddy hill range adjoining the terai range, and when that has been examined a working plan for the two ranges together will be drawn up.

108. *Western Dooars.*—In the Western Dooars the selection of reserves has been commenced in the Mooraghat forests by Messrs. Fisher and Johnstone, the junior assistants who arrived in December last. They were introduced to the work by the Conservator personally, but owing to the season being so far advanced, not much work could be done. They demarcated, surveyed, and mapped, however, six blocks, comprising sal forest ... 3,168 acres.

Khair and sissu forest ... ... 1,300 ,,

Total ... 4,468 acres=6·98 square miles, which it is expected will now be gazetted as reserves. A description of them will be given after this has been done, and the work will be continued in the Buxa forest.

Assam.

109. During the year seven reserves have been gazetted, and four more selected, which it is hoped will be gazetted shortly. The former are the following:—

Name of District	Name of reserve	Sal forest	Mixed plain and lower hill forest	Total
		Area in square miles		
Kamroop	Pantan	12		12
Ditto	Bordooar	23		23
Ditto	Matiakar	3¼		3¼
Nowgong	Kolahaut	7¼		7¼
Ditto	Deboka	3¼		3¼
Ditto	Mikkir Hill		65	65
Naga Hill and Seebsaugor districts	Nambor		100	100
	Total	49¼	165	214¼

110. The sal reserves are all situated in the sal-bearing tract described in Section I as running along the lower part and foot of the northern slope of the Garo, Khasi, and Jynteah Hills. The following is a short description of the tracts:—

Pantan Reserve—

1. *Area.*—12 square miles.

2. *Boundaries.*—*East*, the Kulsi; *south*, the Bherbhery and Lamkarpara Beels, the Kulsi, its feeder the Dorun, the village of Ookiam, the Bokola Dooar Nuddy; *west* and *north-west*, the Bokoladooar, the Dungai Doonga, the village of Gunga Dooar, Jolookbary and Bokara Bora, the Danga Dooar.

3. *Topographical description.*—Low detached hills on the left bank of the Kulsi, immediately below where it leaves the Khasi Hills.

4. *Soil.*—Sandy loam and clay of good quality, resting on a granitic substratum.

5. *Forest.*—Chiefly sal of healthy and vigorous growth and of all sizes. Of other trees the following should be mentioned:—

Sam	*Artocarpus chaplasha*	Both in small numbers
Poma	*Cedrela toona*	
Koroi	*Albizzia odoratissima.*	

Jooming has been carried on to a small extent only.

6. *Timber depôts.*—None at present, but a depôt is to be established lower down on the Kulsi, reachable by Dacca boats.

7. *Timber markets.*—Gowhatty, Goalpara, Dacca

8. *Lines of export.*—Down the Kulsi to the Brahmaputra (both excellent for floating) to Dacca.

9. *Villages within the forest.*—None.

10. *Rights of surrounding population.*—None. The people are amply provided for from the surrounding open forests.

The materials for a working plan of this reserve as well as the others are not yet complete. They will be added next year. Maps on a scale of two inches to the mile, taken from the topographical and revenue surveys, exist.

Bordooar Reserve—

1. *Area.*—23 square miles.

2. *Boundaries.*—*North*, the paddy fields of Miagaon, Tea Maripara, Aluba, and Chowtolla; *east*, paddy lands of Borsola, Ghagoria Chock, Ghernabaree, Panjamie, and Jopungbaree, a feeder of the Moira Nuddy, the Moira Nuddy, Lower Assam Company's estate, village of Kamvanga, the Chucko Khal, and pathway to Boluntporee; *south*, the villages of Boluntporee and Rajapara, the Kulsi Khal; *west*, the Kulsi River.

3. *Topographical description.*—Low detached hills with level ground between them.

4. *Soil.*—On the hills, sandy loam on granitic substratum; on the level ground, somewhat more sandy, with a great deal of vegetable mould. Quality good, especially on the level ground.

5. *Forest.*—The southern chiefly level portion contains perhaps the best sal forest in Assam, whereas the northern hilly portion has suffered from jooming; the western portions towards the Kulsi have been extensively worked by the Lower Assam Tea Company, to whom the tract belonged for some years. The growth of sal on the whole is good.

6. *Timber depôts.*—None at present, but one to be established on the Kulsi.

7. *Timber markets.*—Gowhatty, Goalpara, Dacca.

8. *Lines of export.*—Down the Kulsi on the west, and down the Bata Nuddy on the east, both to the Brahamaputra, and all good for floating, to Dacca.

9. *Villages within forest.*—None.

10. *Rights of surrounding population.*—None. The people are provided for from the open forests.

Matiakar Reserve—

1. *Area.*—3½ square miles.

2. *Boundaries.*—*West*, the Bata Nuddy, the village of Pookapampura, Lower Assam Company's estate, the village of Nokaree, and a large *beel* at the foot of the Deemabeelparbut; *north* and *north-west*, a small feeder which falls into the last mentioned *beel*, then a line to the top of the Deemabeel, thence the Umthoma; *south-east* and *south*, the foot of hills in the valley of the Umsura, the villages of Kenapara and Bandapara, the Bata Nuddy.

3. *Topographical description.*—An outer northern spur of the Khasi Hills, known as Lemphi Range. The ridge is narrow, and the slopes very steep.

4. *Soil.*—Sandy loam of fair quality, with granitic substratum.

5. *Forest.*—Well stocked chiefly with sal, but a great portion of the mature trees have been removed. Other useful trees are—

Koroi	...	...	*Albizzia odoratissima.*
Parellee	...	...	*Bignonia chelonoides.*
Bun-am	...	...	*Mangifera sylvatica.*

6. *Timber depôts.*—None at present, but one to be established on the Kulsi.

7. *Timber markets.*—Gowhatty, Goalpara, Dacca.

8. *Lines of export.*—Down the Bata Nuddy, which is fit for floating during the greater portion of the year, to the Kulsi and Brahmaputra to Dacca.

9. *Villages within the forest.*—None.

10. *Rights of surrounding population.*—None. The people are provided for from the surrounding open forests.

Kolahaut Reserve—

1. *Area.*—7½ square miles.

2. *Boundaries.*—*North*, the grants Khola (No. 46) and Amjaric (No. 47), both resumed by Government, and the Khola Mouza; *east*, Khola Mouza; *south*, the foot of the Khasi Hills and the Kolahaut River; *west*, the trunk road.

3. *Topographical description.*—Level ground situated immediately at the foot of the Jynteah Hills.

4. *Soil.*—Alluvial deposit consisting chiefly of sand with a fair admixture of vegetable mould.

5. *Forest.*—Almost exclusively sal of good growth, but all young, there being no trees of four feet six inches in girth and upwards. The larger trees have all been removed by the Public Works Department for the bridges on the trunk road. In the westerly portion the trees are scattered only, and close to Kolahaut a small portion is grass land.

6. *Timber depôts.*—None.

7. *Timber markets.*—The greater portion of the timber will always be required for the bridges on the trunk road, and the rest for Gowhatty and Nowgong.

8. *Lines of export.*—Trunk road to Gowhatty and Nowgong. Down the Deemal, Kullung, and Brahmaputra, to Gowhatty, Goalpara, and Dacca.

9. *Villages within the forest.*—None.

10. *Rights of surrounding population.*—None. The people are provided for from the surrounding open forests.

Deboka Reserve—

1. *Area.*—3¼ square miles.

2. *Boundaries.*—*North*, the foot of the Mikir Hills; *east*, the Gangadasee River, the Dikbaroo River; *south*, the Jamoona River, old survey line of the former Government reserve, No. 229, from Mikirgaon up to the Mikir Hills; *west*, the foot of the Mikir Hills.

3. *Topographical description.*—Level ground situated at the foot of the Mikir Hills.

4. *Soil.*—Alluvial deposits in the neighbourhood of the Jamoona, Dikbaroo, and Gungadassee Rivers, and ferruginous clay at the foot of the Mikir Hills.

5. *Forest.*—In the north-western portion chiefly sal of good growth; in the eastern and south-eastern part the sal is mixed with other trees, and intersected by grass lands. There are no trees of 6 feet girth and above, and only a limited number between 4 feet 6 inches and 6 feet, the forest having been worked excessively for the Nowgong market.

6. *Timber depôts.*—None.

7. *Timber markets.*—Nowgong.

8. *Lines of export.*—Down the Jamoonah, which is good for floating, to the Kopilee, Kullung, and Brahmaputra, to Gowhatty, Goalpara, and Dacca.

9. *Villages within the forest.*—None.

10. *Rights of surrounding population.*—None. The people are provided for from the surrounding open forests.

A limited number of surveys have been made in the reserves, but the Conservator does not consider them to represent the average contents of material, and he prefers not to put the figures on record.

111. The remaining two reserves are covered with mixed plain and lower hill forest without sal.

Mikir Hill Reserve—

1. *Area.*—65 square miles.

2. *Boundaries.*—*North*, the Lungkung Tung, the Faimoi Joorie, a line along the ridge from the former to a feeder of the Borpung, the Borpung, a line from the source of the Borpung along the crest of the ridge between the Borpung and Bor-Deopanie rivers; *east*, a feeder of the Tareepung, and the Tareepung; *south*, Kallianee; *west*, the Manie Joorie, a line from the source of of the Manie Joorie to the source of the Lungkung Tung.

3. *Topographical description.*—Low hills with steep slopes in most parts, situated immediately on the north bank of the Kollianee River.

4. *Soil.*—Shallow, sandy clay on granitic rock.

5. *Forest.*—Dense evergreen forest, in which the following are the better kinds of trees:—

Nahor	...	...	...	*Mesua ferrea.*
Gunseroi	...	...	...	*Camphora glandulifera.*
Jamu	...	...	...	*Eugenia jambolana.*
Sam	...	...	...	*Artocarpus chaplasha.*
Tita sappa	...	...	...	*Michelia champacca.*
Uriam	...	...	...	*Bishopia Javanica.*
Poma	...	...	...	*Cedrela toona.*

A kind of cinnamon, "tezpat," is common, the leaves and bark of which are used as spice.

Jooming is carried on to a very large extent in the Mikir Hills generally, and the reserve is nearly the only tract left which has not been seriously injured by it. The forest in its present state contains a good proportion of mature trees.

6. *Timber depôts.*—There is a depôt at Golaghat on the Dhunsiri River, but it has been closed lately.

7. *Timber markets.*—There is at present very little demand for the timber growing in this class of forest, except for large trees for dugouts, or boats for use on the Brahmaputra and its feeders.

8. *Lines of export.*—Dragging to the Kallianee, and floating down that river to the Dhunsiri and Brahmaputra.

9. *Villages within the forest.*—One small village consisting of nine houses is situated in the reserve; but as the Mikirs change the site of their villages every second year, it is expected that they will be persuaded to move outside the boundaries of the reserve.

10. *Rights of surrounding population.*—None. The people are amply provided for from the surrounding open forests.

Nambor Reserve—

1. *Area.*—100 square miles.

2. *Boundaries.*—*North*, the Turajan Nuddy and a line from it to the "Doigurung;" *east*, the Doyang River; *south*, the Bor Holonijan and the road between Borpattar and Jamaguri; *west*, the foot of the eastern slopes of the Rengmah Naga Hills and the Doigurang River.

3. *Topographical description.*—Almost entirely level ground, comprising the land on the banks of the Doigurung, Dunsiri, and Doyang Rivers.

4. *Soil.*—Chiefly alluvial deposits with vegetable mould.

5. *Forest.*—Mixed plain and lower hill forest, well stocked with trees of all sizes, except perhaps along the banks of the rivers, where timber has been cut and removed to some extent. The better kinds of timber are:—

Ajhar	...	...	...	*Lagerstrœmia reginæ.*
Nahor	...	...	...	*Mesua ferrea.*
Poma	...	...	...	*Cedrela toona.*
Hulluk	...	...	...	*Terminalia bicolorata.*
Sam	...	...	...	*Artocarpus champlasha.*

6. *Timber depôts.*—Golaghat, 8 miles below the junction of the Dunsiri and Doyang Rivers, but at present closed.

7. *Timber markets.*—Golaghat, and tea estates in its vicinity. The requirements of the Public Works Department are drawn from this forest; also boats for use on the Brahmaputra and its feeders.

8. *Lines of export.*—Down the Dunsiri and Doyang, excellent for floating, to the Brahmaputra.

9. *Villages within the forest.*—None.

10. *Rights of surrounding population.*—None. The people are amply provided for from the surrounding open forests.

112. The sal reserves will return a fair amount of revenue at once; but from the Mikir Hill and Nambor reserves only very small returns can be expected at present, as the timber they contain is not sufficiently valuable to stand a long transport. The demand will largely increase, however, as the open forests become exhausted and cultivation, especially of tea, increases.

113. The reserves will now have to be permanently demarcated, and the sal reserves examined in detail, with the view of framing simple working plans for them.

114. The reserves selected, but not yet gazetted, are the following:—

	Square miles.
KAMROOP—	
Kulsi plantation reserve	5½
DURRUNG DISTRICT—	
Kalingduar	6
Balipara	70
Nanduar	54
Total ..	135½
Add caoutchouc reserve ..	200
Grand Total ..	335½

115. During the next season the Jeerung forest and other sal tracts in Kamroop and Nowgong will be examined, and further reserves selected. In the Seebsaugor district the selection of reserves of mixed plain and lower hill forest is to be taken in hand.

Chittagong.

116. No reserves have been created in Chittagong, and the Commissioner writes on the subject as follows:—

"The following reserved tracts were proposed to be notified:—

"No. I.—*The Kassalong Reserve* (area 875 square miles).—*North*, Hill Tipperah and Cachar; *south*, the Karnafoolee River from Kassalong to Burkhal falls; *east*, the Burkul and Sirthay Tlang Ranges; *west*, the Myunee and Kassalong Rivers.

"No. II.—*The Soobalong Reserve* (area 91 square miles).—*North*, the Burkhal Tong; *south*, the head waters of the Soobalong River; *east*, the Sychul range; *west*, the Soobalong River."

The tracts proposed to be reserved have not been approved by Government pending an exploration of the forests by the Assistant Conservator and an acquisition of comparatively accurate and definite knowledge of the forests.

117. On the subject of reserves Mr. Davies writes in the following terms:—

"If it should be considered absolutely indispensable to have reserved forests, the tracts I would recommend as reserves are those drained by the Myanee, from where it joins the Kassalong to its source; the Renkheong above Phuroh; the Kurnafoolee above Ootrun Chutra; the Sungoo above the Thendoo Kheong; and the Matamoree above the Lagada Kheong.

118. "There are many reasons why reserves cannot be of any possible advantage in the hills, and I will proceed to show why they must be ineffective, and what I propose would answer quite as effectually without involving anything like the same expense as would be required for reserves.

"In the first place it is clear, judging from the data we possess of the last two years' consumption, that about 745 tons of timber in logs, 430 tons of beams, planks, and crooks, and 667 tons of timber for canoes, are required annually to meet the present requirements of Chittagong; and say we add only the same quantity of boats, leaving out the timber in logs and planks for the requirements of the hill tracts (we do not possess any statistics of their consumption), it becomes necessary for these forests to yield annually about 2,500 tons of timber of the better kinds, whilst of inferior wood, house-posts, and saplings, on an average 8,813 would be required, but for this there need be no provision made, for we have more useless wood than can be possibly required for ages, and it is this inferior fast-growing wood that springs up and shuts out the more valued kinds, which accordingly become rare.

119. "To me it appears very doubtful whether the forests bordering on rivers will continue their present rate of supply very much longer, and it has for some time been clear that each year the wood-cutter has further to go and more difficulty both in finding and bringing out large timber; and it is equally

certain that so long as there is a large consumption and good demand, and there is any timber left in the country, it will be brought out by the enterprizing wood-cutter, no matter where it grows, what the cost or difficulty, and therefore he may be safely left to secure his immediate wants as best he can. To put a limit to the quantity to be felled yearly would now be of little use; it should have been done years ago, and would simply give cause for complaint now without there being any possibility of the forests recovering themselves by natural reproduction. What then have we to gain by having reserves? If our forests were compact, of any value, and situated so that their timber could be easily taken to market, or in other words if we had any really good forests that might be improved by care and outlay, I should say by all means preserve them to the utmost; but such is not the case. Over vast wild and uninhabited country we have scattered tree forests, some parts of which are better stocked owing to their inaccessibility than others, but all presenting alike a scattered mixture of good and inferior wood. I presume the whole country could not be reserved, and therefore if a part of it was closed as reserves, all the unreserved portion would be open, and it would naturally be resorted to in preference to the reserved portion, where strict rules and regulations would have to be observed; all then that would be gained at the outside would be that the best places would be closed, which could be done just as effectively by administrative measures and orders from the civil officers.

120. "The whole of the timber country is uninhabited, and many miles away from villages of any kind, so that it would be difficult to get watchers or persons in charge of the reserves to live in them, except there were a number of them in each. Even if they were entertained in sufficiently large numbers to admit of their living in the forests, they would require at least one trustworthy officer in each reserve, otherwise they might dispose of any quantity of timber without detection; besides which I doubt whether any persons living in the forests all the year round would keep their health, and this would be really necessary, as men go up all the year round in the cold and hot weathers for beams and planks, and in the rains for canoes and logs.

121. "What I propose as far more effectual and feasible is to abolish the idea of 'reserves' in a country like this as perfectly impracticable, and to take advantage of the means nature has provided. We have large rivers down which all the timber must come, and any rules and laws can be quite as rigidly carried out by results being watched from the inhabited parts as by their actual observance in the forests. If sanction would be accorded to the employment of a small conservancy patrolling staff, it might be useful in helping to bring home to any person any breach of forest laws. I do not believe anything more is wanting, except it is effective rules to ensure our doing what we please with the forests. The present toll-collecting staff answers both as revenue collectors and a check on the size of timber brought out; in like manner it could be made the means of restricting the outturn of the forests, should it be considered necessary to limit such.

122. "The next question is, how are we to meet future requirements? To me it is quite evident that natural reproduction alone cannot be relied on, and that we must have recourse largely to planting, taking our present requirements as a guide to what we have to replace, and thus each year's outturn will show what we must plant to supply in course of years what we are now extracting from the forests. Each acre should have 100 mature trees standing on it after all thinnings are taken out; this would show that we must have 12 seedlings for every tree we intend to have, but to be safe I think at the least 25 seedlings should be planted for every log now brought down. This then will give us in lieu of a scattered, mixed, worthless forest, a valuable, compact, manageable, forest: instead of patching up a wreck we launch a new craft."

123. Regarding reserves the Deputy Commissioner of the Hill Tracts makes the following comments on the views expressed by the Assistant Conservator of Forests as cited in the preceding paragraphs. The Deputy Commissioner says:—

"The conclusion arrived at by the Assistant Conservator seems to be that there exist no particular parts of the district which are fit for reserve forests

save such portions as are extremely remote, and the inaccessibility of which has alone saved the timber from destruction by joom or felling. In this conclusion I concur, and I respectfully beg to support Mr. Davis's recommendation that we should abandon the idea of setting aside tracts of land as reserves until such time at least as we possess tracts upon which anything worth preserving is found.

124. "In speaking of reserves I limit myself entirely to the term in its most rigid acceptation, as prescribed in fact by the forest conservancy rules on the subject. I agree however with Mr. Davis that it is desirable to prevent any timber cutting in places where valuable timber still exists. A separate proposal on this head will hereafter be submitted.

125. "Having determined that in this district facilities for the introduction of the reserve system do not exist, it next remains to be considered what measures should be taken to regulate and perpetuate the supply of timber from the tracts. Mr. Davis estimates the present requirements of Chittagong in regard to timber to be 2,500 tons. It would have been instructive had a comparative return been submitted showing how this result was arrived at. I have requested Mr. Davis to remedy this omission.

126. "It is interesting to note, however, that a large increase has taken place this year, as compared with last, in the number of timber logs brought to market, while a corresponding decrease is shown in planks and beams sawn and cut in the jungles. The inference to be drawn from this is that the timber has been cut mostly in such remote and difficult places as to render the conveyance thereof by water safer and more convenient as logs rather than in the shape of planks, and that the supply of timber in places easy of access is therefore perceptibly diminishing.

127. "Supposing the estimate of consumption as above given to be correct, and granting that we prohibit all timber felling in the yet unexhausted forests of the district, there is every reason to suppose that the present rate of supply cannot be much longer continued; while, on the other hand, the measures taken to ensure a future and permanent supply of timber by planting is necessarily a remote and far distant panacea for an actual and fast approaching difficulty. Whether or not, under these circumstances, it would be wise to limit timber-cutting in the hills, that is, to prevent *all* felling of timber after such period annually, when a certain specified amount has been cut and brought out, and by such prohibition to cause a rise in the Chittagong market prices, and so stimulate the importation of wood from Arracan and elsewhere, seems to me to be a question which could most fitly be referred for an authoritative opinion to the head of the Forest Department—the professional adviser of Government in such matters. From the present state of affairs one conclusion at least seems to me absolutely and clearly deducible. It behoves us to expend a very much larger sum than we have hitherto done in planting seedlings and providing for future supply."

128. "I (the Commissioner of Chittagong) agree entirely with the views of both the Assistant Conservator and the Deputy Commissioner regarding the inadvisability of forming reserves. The forests of the district are too scattered in the first place to make it worth the heavy expense that would have to be incurred. From the nature of the country and the climate, the rules would be extremely difficult to work; and lastly, before coming to any final determination, I should deem it advisable to get more extensive and detailed local information. On this latter head much has been done during the year of report by Mr. Davis, but the stock of local knowledge is yet far from being exhausted, and therefore before making any substantive recommendation, I should prefer to increase it. Before action, knowledge. Meanwhile I am strongly opposed to the policy of forming any reserves at all."

129. It appears to the Conservator of Forests that the Commissioner has expressed the right thing by doubting the sufficiency of the knowledge of the forests which has been collected. To watch matters from a distance, as the Assistant Conservator seems to advocate, would be detrimental. On the contrary, he should try and draw up sketch maps showing the distribution of

the forests, ascertain their approximate areas, contents of timber, and rate of growth. If this had been done, it would be possible to determine by calculation whether the stock of growing material is sufficient to guarantee the required material for any length of time, or how far it falls short of it—questions which have a heavy bearing on the decision whether reserves should be formed or not. At any rate the question of reserves should be left open for the present.

Palamow.

130. In this district 178·12 square miles of forest land have been marked off for forest purposes. The question whether they should be declared "reserves" is now under discussion.

SECTION III.

Protection and Improvement of Forests.

131. *Establishments.*—A number of additions to the subordinate establishment has been made during the year. The new reserves in Assam have received an establishment consisting of one forester and five watchers for the Kamroop sal reserves, and one forest ranger and five watchers for the Nowgong reserves. For the unreserved forests of Assam an establishment of one daroga and four watchers has been provided for each of the Kamroop, Durrung, Nowgong, Seebsaugor, Luckimpore, and Khasi and Jynteah Hill districts. These are posted under the Deputy Commissioners, who are in charge of the unreserved forests.

132. In Chittagong the following additional establishment has been sanctioned:—

1 Inspector of tolls, per month	...	...	Rs.	120	0	0
1 Forester "	...	...	"	25	0	0
3 Watchers, at Rs. 7 "	...	...	"	21	0	0
4 Ditto, at " 6 "	...	...	"	24	0	0
		Total	Rs.	190	0	0

133. A reorganization of the superior and subordinate establishments is urgently necessary and now under consideration. At present we have one Conservator of Forests and 11 executive officers, partly supernumeraries. For Cooch Behar we require three officers, Assam four, Dacca one, Chittagong one, Office of Forest Account one,—total 10. One officer may always be considered on leave, or junior, so that the present staff is just sufficient for four divisions. During the next season one officer will be required for the Garo Hills, where valuable sal forests are still existing; two officers are likely to be required for the Sunderbuns; and in the whole of western districts, Patna, Bhaugulpore, Chota Nagpore, and Cuttack, forest matters have still to be taken up. To provide English officers for all these purposes will be difficult and very expensive, and the Conservator believes it to be preferable to introduce into the administration a superior class of native officers—rangers.

134. In order to do so, certain changes in the organization of the department will be necessary; the controlling work will have to be entirely separated from the executive work, and a forest class should be established in connection with one of the engineering colleges. The views of the Conservator on the subject have been laid before Government in a special report.

135. The present subordinate establishment is altogether insufficient, and an increase has been applied for.

136. *Breach of Forest Rules.*—During the year under review only eight cases, in which ten persons were concerned, have been brought before Magistrates, out of which only two convictions were obtained, and two cases are pending.

137. *Fire suppression and cutting of creepers.*—Endeavours were made to protect the Sivoke and Dulka Jhar forests against fire; but before the measures could be brought to a close, the fires began to run into the forests, causing

the labor spent to be wasted. In the Mooraghat a beginning was made by protecting effectively 420 acres of sal forests by means of cleared pathways and burning the jungle outside. A beginning has also been made to cut the creepers in Mooraghat and Sivoke. During the coming season it is proposed to take this class of work vigorously in hand. The sal forests in the Mahanuddy terai range, in Mooraghat, and on the Kulsi in Assam, are the areas selected for a beginning.

SECTION IV.

PLANTATIONS.

138. The area planted on the 1st April 1872 amounted to 504 acres, and during the year 89 acres have been added. According to species of trees we have—

		Acres.
Plantations of temperate trees	.. .. ..	450
„ teak and toon	.. .. ..	68
„ conifers ..	.. .. ..	42
„ caoutchouc ..	.. .. ..	28
„ fruit trees ..	.. .. ..	5
	Total ..	593

The Conservator has examined all the plantations in Cooch Behar and Assam, and the following descriptions have been compiled from his own notes.

Cooch Behar Division.

139. *The Rungbool plantation* is situated on the western and south-western slope of the ridge running from Jore bungalow to Senchal. The road from Jore bungalow to the old barracks forms the upper, and the old road from Jore bungalow to Kurseong, the lower boundary. The plantation begins a short distance south of Jore bungalow, and its elevation is about 7,500 feet above the sea. The substratum of the locality is gneiss, the soil clay mixed with sand of a reddish color in the lower, and of a dark color in the upper part. On the whole the soil is good for the growth of timber trees; but the slope is steep in most parts, hence little surface soil.

140. The forest surrounding the plantation consists of a variety of trees, the most important of which are the following :—

Champ ..	White magnolia ..	*Michelia excelsa.*
Lal champ	Red magnolia ..	*Magnolia Campbellii.*
Katoos ..	Chestnut ..	*Castanopsis tribuloides.*
Book ..	Oak ..	*Quercus lamellosa.*
Phalat ..	Oak ..	*Quercus annulata.*
Lali ..	.... ..	*Phœbe sp.*
Kabashi	Maple ..	*Acer sp*

These forests are rich chiefly in old timber. The trees, densely covered with creepers, attain a very good height. Book, katoos, lali, and kabashi appear to be more numerous than the others ; lal champ is rather scarce.

141. Preparatory to planting the whole area was cleared of timber, of which a great portion is now lying on the old road from Jore bungalow to Kurseong. It is difficult to ascertain now the exact areas planted in different years ; but it appears that the bulk of the plantation was made in 1868 and 1869, and that about 70 acres were added in 1871 in the upper part of the plantation. The original planting in 1868 seems to have been done with seedlings collected in the surrounding forests, which may have been of stunted growth and older than they appeared to be ; they had not suffered from jungle fires, however, as the latter are extremely rare in the upper hill forests. The seedlings are said to have been put into nursery beds for one year before they were planted out, but that is doubtful. After having been planted the greater part of the young trees, instead of growing on, seems to have died down to the stock, and the latter then sent out fresh shoots. In 1869 additional plantings were made with seedlings raised in nursery beds, especially *acrote* (walnut). In 1871 the

addition of 70 acres was made and failures replaced, both with seedlings raised in nurseries.

142. The younger and older plants are now mixed with each other nearly over the whole area, and the plantation should be taken as "one" raised between the years 1868 and 1871. The plants along the lines of march in all parts of the plantation were measured on the 9th January 1873, and the following table shows the result of these measurements :—

Name of tree.	Total number of plants counted and measured.	Average height per tree in feet and inches.	Largest plant measured.	Smallest plant measured.	Proportion of each kind in per cent.
Champ	139	1′ 9″	8′ 3″	3″	34 per cent.
Acrote	111	2′ 10″	7′ 6″	10″	27 ,,
Book	79	2′ 10″	5′ 0″	9″	19 ,,
Phalat	45	3′ 3″	6′ 6″	9″	11 ,,
Katoos	36	2′ 8″	5′ 10″	8″	9 ,,
Total ...	410	...	...	...	100

It was found impossible to ascertain the area actually stocked without a good deal of labor, but it is estimated that about two-thirds of it is fairly covered with seedlings. Herbaceous plants and shoots from old stumps form a thick cover, which has smothered many plants.

143. The growth of *acrote* (walnut) is very good, the plants being strong and healthy. Of the others, some plants are now very vigorous, but their growth on the whole is not good. *Acrote* thrives well from early youth when exposed to the full light of the sun, but *champ*, oaks, and katoos seem to prefer some protection during the first years of their existence, and they should be reared in half shade. Of *lal champ* a few natural seedlings were found in the plantation, which show habits similar to those of *acrote*.

144. Entire clearings in the upper hill forests are mistakes. Moreover, it is a very difficult task to reclaim a plantation which has turned out entirely or partly a failure in the first year. Under these circumstances no further attempts to fill up the vacancies by artificial means should be made. If all shoots and seedlings, irrespective of species, are allowed to grow, the area will be fairly stocked with young forest in a few years. Afterwards the useless trees might be removed to make room for the more valuable species.

145. The expenditure incurred during the year amounts to Rs. 75-6, and the total expenditure up to the 31st March 1873 to Rs. 9,195-0-6, which is at the rate of Rs. 27-7 per acre.

146. *The Dhobee Jhora plantation* near Kurseong is situated on the upper part of the western slope of Mahaldiram, at an elevation of about 5,600 feet. It is believed to have been established in 1866; its extent is given as 42 acres, and the number of plants now alive as amounting to 3,584. The conifers planted are *Cryptomeria Japonica*, *Thuya orientalis*, and *Curpressus funebris*. The trees thrive fairly well, some of them having attained a height up to 18 feet. The ground is covered with brambles, weeds, grass, &c., but no clearing is necessary as the young trees are above the jungle, and will be able to contend successfully against it. The expenditure during the year was 8 annas, and the total expenditure Rs. 32, or at the rate of 12 annas per acre; but there is no doubt that this is only a portion of the actual expenditure, the rest having been charged off under some other heading.

147. *Bamunpokree teak plantation.*—By far the most important experiment is the introduction of teak into Sikkim. A plantation of this most valuable tree has been established in the Bamunpokree reserve, situated on the southern slope of the Bamunpokree spur. The area of the reserve is 1,372 acres. It is bordered on the east by the Ruktee River, and on the south and west by the road from Silligoree to Punkabaree. On the south side, however, there is a small strip of land between the Government reserve and the road, which belongs to the late Mr. Barnes' estate. The upper part of the reserve consists of a plateau; and on the sides the gradient is steep, but towards the southern part it runs out into a gentle slope. The drainage of the spur runs into the Ruktee, which follows a south-easterly direction, and joins the new Balasan River about five miles above Silligoree. The Balasan runs to the south-east, and joins the Mahanuddy about a mile below Silligoree. The Mahanuddy in its turn follows on the whole a southerly direction, and falls into the Ganges about 80 miles above Kooshtea, where the Eastern Bengal Railway touches that river.

148. The timber produced on the south side of Bamunpokree spur would have to be transported the following distances:—

Dragging to the Ruktee on an average	½	mile.
Floating in single logs to the Mahanuddy ...	14	miles.
Ditto small rafts to the Ganges	180	,,
Ditto large rafts to Kooshtea	80	,,
Total land carriage ...	½	mile.
Total water carriage ...	274	miles.
Grand Total ...	274½	miles.

The floating over the first 14 miles to the Mahanuddy presents some difficulties, as the water in the Ruktee and Balasan rises and falls very suddenly, but hardly more so than the floating in most creeks in the Burmah teak forests. On the other hand, labor is at present cheaper than in Burmah, and teak timber from the Bamunpokree spur could therefore be delivered at Kooshtea at the same or at a lower rate than teak timber from the plantations in the Tharawaddy division in Burmah at Rangoon.

149. The rainfall on the Bamunpokree spur is believed to be just above 75 inches, which is more than necessary for teak, but not too much. The soil on the southern extremity, where the present teak plantation has been established on a gentle slope, is two feet deep, consisting of decayed gneiss extensively intermixed with vegetable mould, which mixture forms a very rich, fine-grained, light, and black soil. At a depth of two feet gravel of gneiss appears, which, it is assumed, changes gradually into gneiss rock, the latter forming the underlying stratum of the whole spur. These conditions must be considered as very favorable for the growth of teak. The area fit for teak is estimated to amount to about 700 acres.

150. The natural forest on the Bamunpokree spur is valuable, and especially rich in trees in the upper portion. The more important kinds growing on it are the following:—

Sal (*Shorea robusta*), especially on the slopes and lower portions.
Chalownee (*Gordonia sp.*), chiefly in the upper part.
Toon (*Cedrela toona*), in few specimens near water-courses.
Seet sal (*Dalbergia latifolia*) in few specimens, all small.
Seeda (*Lagerstrœmia parviflora*).
Several species of *dillenia*, *terminalia*, *ficus*, and *oodala Sterculio villosa*. The bark of the latter is a very good material for ropes.

151. The teak plantation consists of three blocks, namely:—

	Acres.
One made in 1868 extending over ...	7
Ditto 1871 ,, ...	3
Ditto 1872 ,, ...	30
Total ...	40

The plantation of 1868 was prior to planting cleared of trees, in some parts entirely, and in others some sal and seet sal was left standing. It was laid out 6 feet by 6 feet. Whether the seeds were sown directly on the area, or whether it was stocked with seedlings raised in nurseries, is doubtful. In spring 1869 about 800 plants only appear to have been alive, and all vacancies were replanted in that year. Where no old trees have been left standing, the young teak trees cover the ground now completely, and they look very vigorous. Under and between the old trees teak is of less good growth, but it is possible that in these parts the soil is somewhat inferior. Where the teak has closed up overhead no tall grass has sprung up; in the rest of the plantation a good deal of it has established itself. In an average line all trees were measured four feet above the ground, and the following results obtained:—

Total number of trees measured	80	
Average girth per tree	5·51 inches.	
Average height from	12-15 feet	
Trees now alive in per cent of those originally planted	67 per cent.	100
Failures	33 „	

An insect was found which sucks the *parenchyma* out of the leaves. The specimens obtained were old and defective, and Dr. Stoliczka of the Geological Survey, to whom they were sent, was unable to recognize the exact species. The insect will be watched so as to obtain good specimens for determination. It may be remarked here that the same or a similar insect attacks young teak in Burmah, where good life specimens have not been caught up to the present time. Some attempts towards pruning have been made by cutting off the ends of the lower branches. Most of the branches thus treated are now dead; some are still alive and have sent out fresh leaves. This method of pruning is objectionable; and if pruning of side branches is done at all it should consist of cutting them off close to the stem with a hand saw, so that the wound may grow over. Thinning will not be necessary for at least one year more in the best part, and for at least two years in the inferior part of the plantation.

152. The plantation of 1871 was made with transplants. The seed was sown in a nursery in June 1870, but it did not germinate until the beginning of the rains of 1871, probably owing to its having been covered one and a half inches to two inches deep with soil. The *cotyledones* of teak are large, and they have to be brought above the ground, consequently the covering of the seed should be very thin, not more than one-eighth of an inch. The seedlings were transplanted into the present plantation in July 1871, ten feet apart. Measurements were taken in one line on the 5th January 1873 with the following results:—

Number of plants measured	19	
„ „ failures	4	
Average height per plant	7 feet.	
Percentage of original plants alive, 83 per cent		100
„ „ „ failures 17 „		

The plants look vigorous, but they have been planted too far apart, and the ground will not be covered for at least two years more. This will not only affect the growth of the trees, but it will also necessitate an additional heavy expenditure on account of keeping the grass and other vegetation down.

153. The plantation of 1872 was made with transplants. The seed, it is believed, was sown in nurseries in April and May 1872, and the seedlings were transplanted in June, July, August, and September 1872, at distances 6 feet by 6 feet. Numerous countings were made on the 5th January 1873, with the following results:—

Total number of planting spots examined	1,459	
Number of plants alive	1,072	
„ failures	387	
Percentage of plants alive 73 per cent.		100
„ failures 27 „		

Of the remaining 73 per cent. a good portion looks sickly. The plants are almost all under 6 inches high, and most of them very small. In many cases the upper lateral roots are exposed to the sun, owing to the careless way in which the laborers have worked the soil around the plants. The northernmost part of the plantation is almost entirely a failure. Here the planting spots in two lines were examined with the following results:—

Plants alive	...	...	...	...	21
Failures	...	...	...	...	95
			Total	...	116

Percentage—Alive,	18 per cent.	...	...	...	100
Failures,	82 „	...	...	...	

This portion as well as several others of smaller extent will have to be replanted this year.

154. One of the reasons why the plantation is in such an unsatisfactory condition may be found in the fact that the nurseries are situated about one-fourth of a mile distant from the north-west corner of the area planted. Thus the plants had to be carried on an average about two-fifths of a mile. This is very objectionable, considering how difficult it is to obtain laborers, who will bestow the proper care upon the seedlings while in transit. The same mistake, it should be remarked, has been made in forming the plantations of 1868 and 1871, but the disadvantage was then easier to overcome, because operations were carried on on such a small scale. The nurseries of teak should, whenever possible, be situated in the centre, or at least on the border of the piece of land to be planted. When planting is going on the work should be so arranged, that the plants taken out of the nursery beds are at once transported to the place where they are to be planted, and they should be put into the ground without delay.

155. A number of sisu and toon seedlings collected in the natural forests have been planted, partly in a place between the teak plantation and the old nursery, and partly in a place of ·31 acres extent adjoining the teak plantation of 1871. The sisu seedlings are out of their proper element, and they show indifferent growth. The toon thrives better, and if reared from seed, the plants will do well in situations like that of the present plantation.

The expenditure during the year amounted to Rs. 2,002-3-9, of which sum Rs. 785-13-9 are not shown in the year's account owing to the cinchona department having presented the bills after the close of the year. The total expenditure amounts now to Rs. 4,375-13-7, or Rs. 109-6-4 per acre. The plantation has been under the charge of the cinchona department during the year, but it has now been made over again to the Forest Department.

156. During the present year the vacancies have all been filled up, and an extension is being made of teak, sal, and toon mixed. In addition 20 acres of caoutchouc plantation are under preparation on the Bamunpokree spur. These will be reported on next year.

157. *Ramshai Hat and Fallacotta.*—Two small experimental plantations of teak have been made, one in the lower Toondoo forest near Ramshai Hat, and another near Fallacotta. The situation of the former is on a plateau about 40 feet above the general level of the plains. The soil appears to be fairly good, and the subsoil (gneiss) favorable; but the trees in the vicinity, especially sal, are not of good growth, and it is doubtful whether teak will grow into large and well-shaped trees on the locality chosen. The plantation itself was laid out in 1869, extending over a few acres. Subsequently it appears to have been neglected; at all events it has been burnt down repeatedly by jungle fires. At present there are only a few shoots from burnt-down trees to be found. Some of these look vigorous, but no decisive opinion can be formed regarding the growth of teak in the locality. The small teak plantation near Fallacotta was laid out in 1872. The locality chosen is situated near the bank of the old Toorsa in the middle of a grassy plain without trees,

and at an elevation just above the flood level during the rainy season. A number of plants are growing, but their prospect of becoming large and well-shaped trees appears to be very small indeed. The Conservator of Forests is of opinion that localities like the one chosen are utterly unsuited for teak, and just as much or as little likely to produce good teak timber as the country around Calcutta.

158. *Mahanuddy and Gulma plantations.*—These are two experimental caoutchouc plantation in the Sikkim terai on low-lying savannah tracts. In the Mahanuddy block *Ficus laccifera* and in the Gulma block *Ficus elastica* has been planted. In each 1,500 cuttings three feet long were stuck in the ground. Of the *Ficus laccifera* 80 per cent. were found dead, and the remaining 20 per cent. unhealthy looking. Of *Ficus elastica* only one plant has been found alive. On the whole these two experiments are failures, the result of want of care.

Assam.

159. In this division plantations have been only experimental up to the present, with the view of ascertaining whether teak will thrive in the province. Plantations have been established on the Kulsi River, about 30 miles west of Gowhatty, and at Makoon on the Dehing River, 60 miles east by south-east from Debrooghur.

160. *The Kulsi teak plantation* is situated on the right bank of the Kulsi, about seven miles below the point where it emerges from the Khasi Hill. The Kulsi is an excellent river for floating, it having a current of water all the year round, and no obstruction below the plantation. The distance of the latter from the Brahmaputra is about 15 miles. The tract selected as plantation reserve comprises an area of 5½ square miles, consisting of a number of low hills with low lands between. The latter contain a number of *jheels* or pools of standing water. The slope of the hills is steep in the upper portion, but gentle near the foot. The rock is gneiss with a good deal of quartz. The soil is a mixture of loam, clay, and sand, the latter being greater in proportion round the foot of the hills than on the upper slopes. The soil in the former localities is intermixed with a good deal of vegetable mould, and of good quality to a depth of several feet. The forest on the hills is of the class designated as lower hill forest, containing a large variety of trees including sal and a good proportion of bamboos. The growth of the trees is very fair, and that of sal is good.

161. The plantation was commenced in the beginning of July 1872 on a gentle slope immediately adjoining the Kulsi. The clearing of jungle lasted from that time until the middle of September. The seed was sown chiefly in nurseries on the 7th July, namely, Burmah seed of 1872 and 1870, and Assam seed of 1872. One half of an acre was sown direct 6 feet by 3 feet on the same date. The Burmah seed of 1872 germinated best, then that of 1870, and then the Assam seed. By the end of July all the seed had germinated. Transplanting commenced on the 1st September, 6 feet by 6 feet with plants about 3 inches high, first those raised of Burmah seed of 1872, then of Burmah seed of 1870, and last those of Assam seed. The transplanting was completed on the 14th September—

Area transplanted	...	...	...	7¾ acres.
Area sown direct	...	...	...	0¼ „
		Total	...	8¼ acres.

162. The plantation when examined on the 18th and 20th May 1873 presented the following condition: The portion of the area sown direct is better than the rest. All plants in the former look vigorous. The portion transplanted first (Burmah seed of 1872) looks almost as well as the part sown direct; rain fell after the transplanting had been done. The transplants done last are much inferior, very little or no rain having fallen after the transplanting. It should be noted that the latter was done too late in the season, and that

different results might have been obtained if it could have been done earlier. 1,547 planting spots were examined, which gave the following results :—

Area on which the seed was sown, direct failures	...	4 per cent.
First transplants (chiefly Burmah seed) ...	...	12 „
Last transplants (chiefly Assam seed) ...	...	8 „
Average failures	...	8 „

The height of the plants ranged from a few inches up to two feet. The earth on the planting spots generally was loosened one foot square and one foot deep. No jungle clearing was necessary after the planting until April 1873. Regarding the appearance of the plants, as compared with those in Burmah, it is observed that their stems, instead of being square, are in most instances bottle-shaped, which circumstance is unfavorable and requires special attention.

163. The expenditure on this plantation amounts to Rs. 411-13-6, or at the rate of Rs. 51-8 per acre. During the present year an extension of about 30 acres of teak and toon mixed has been made, also a small plantation of sisu and 20 acres of caoutchouc.

164. *Makoom plantation.*—The Conservator visited and examined this plantation on the 5th July 1873. The site chosen is on the right bank of the Dehing River, 21 miles above Jaipore. The Dehing is fit for floating at all seasons of the year, and it contains no obstructions below Makoom. The distance to the junction of the Dehing with the Brahmaputra is about 100 miles. The plantation is situated on level ground, about 15 feet above high water level. The drainage is defective, but owing to the soil being a loose yellowish loam, and deep, the water sinks comparatively fast into the ground. The forest is dense evergreen mixed plain forest, with a great deal of rank vegetation and some bamboos. The land appears to have been joomed formerly.

165. The plantation was commenced in July 1869, when one acre of ground was sown direct 6 feet by 6 feet, the vacancies being filled up from a small nursery. The seed germinated well, and the area is now fully stocked. In July 1871 a little less than one acre was added, the seed being sown in a nursery, and the seedlings afterwards transplanted 6 feet by 6 feet. This area also is well stocked now. In July 1872 two and a quarter acres were added, namely, two acres by transplants, and a quarter of an acre sown direct, all 6 feet by 6 feet. The seed in the latter portion did not germinate, from what reason is unexplained; but doubts seem to be entertained as to whether the seed has been put down at all. The two acres transplanted are now half-stocked, the remaining 50 per cent. being failures.

166. The plants and young trees in the whole of the four acres are evidently growing very fast, those in the four years' old plantation being up to thirty-three feet high, and in the two years' old block up to sixteen feet; but there are evident signs of unhealthiness. Numerous trees are dying off by decaying just where they leave the ground. A four years' old tree found lying on the ground had decayed right through. The wood from one foot above the ground upwards was perfectly sound and healthy, without any trace of insects having attacked it, whereas it had rotted away a few inches above and below the surface. The roots of the plants dead or dying are diseased, and partly rotten. Many of these trees, *not all of them*, have been attacked by an insect, the grub of a beetle, which enters the younger plants just above the ground and eats its way up in the centre of the stem. There is no doubt, however, that this insect is not the cause of death or disease, but the consequence, as several dying plants and trees showed no signs whatever of having been attacked by it. In the oldest plantation the bark and sap-wood of the trees up to a height of four feet from the ground were found so soft that they could be scraped off with a stick. They are extensively eaten up by ants. Most of the larger trees in the plantation of 1869 have no leaves on their upper branches, or they were just appearing (5th July); whereas the lower branches had a dense foliage. The shape of the trees is not good, they having a tendency of sending out strong side branches below, although they are sufficiently close together and cover the ground perfectly. Moreover,

by far the greater number have sent up two and three leading shoots, and even those which have only one stem below are divided into several branches at about 25 feet from the ground. These peculiarities in a well-closed plantation are unmistakeable signs that the locality is not adapted for teak, and it appears very doubtful whether the cold dampness of Upper Assam will allow teak to thrive. This view is corroborated by the appearance of a number of *teak trees at Jaipore* said to be now 20 years old. The number of trees originally planted is said to have been much larger than those now alive. Whether the trees have been removed while alive, or after they had died, could not be ascertained; but the remaining trees are very instructive. Jaipore is situated on the bank of the Dehing above high-water level, but a portion of the teak trees in question are said to be on ground sometimes inundated for a short time when the water rises to an exceptional height. On this point, however, I am not quite satisfied. The trees now found are 3 to 5 feet in girth and up to 45 feet high. They look very miserable, some have died, or are now dying; and of those still alive one has been attacked by white and other ants, which have eaten up bark and sap-wood on the lower part of the stem. Their shape is very inferior and much fluted. The trees have received casual injuries, but not by any means to such an extent as to explain their present appearance.

167. There is one point to be considered, however, namely, that the trees at Jaipore as well as those at Makoom are standing on level ground, and it may be that trees growing on thoroughly drained slopes will do better. With the view of ascertaining this, arrangements have been made to plant half an acre on undulating ground between Jaipore and Makoom. The ground in question bears very fine lower hill forest with a very large proportion of bamboos, and it is a great pity that the experimental plantation has not been established on it four years ago.

168. The expenditure during the year amounted to Rs. 183-12-6, and the total to Rs. 536-12-6, or at the rate of Rs. 134-3 per acre.

169. *Shillong tree nursery.*—An attempt has been made to raise European genera of timber trees in the Khasi Hills. Seed beds were carefully prepared and a quantity of seed sown, but none has germinated. Of Australian seed some acacias have come up. A garden of five acres in area and stocked with European fruit trees was bought at the recommendation of the Commissioner for Rs. 950. There is a large variety of trees, as apples, pears, peaches, apricots, cherries, gooseberries, plums, raspberries, currants, olives, figs, and others, which are mostly doing well.

Chittagong.

170. The Commissioner gives the following account of plantation operations in the division: "During the first year of plantations, two plans were tried. One plan was to give seeds to joomeahs in the hill tracts. This was done by the Assistant Conservator in concert with the Deputy Commissioner; and at the time the seed was distributed; a bonus of Rs. 5 per seer was given with the seed, and joomeahs were further given to understand that when the seed came up, they would be paid a fair rate per hundred for all the plants they could raise; and if the seed did not come up, they would not be called upon to refund the money they had received, nor would they be held in any way responsible for the future. Thus encouraged they readily took the seeds and money, and it was only reasonable to expect some return; but out of 25 seers comprising about 38,000 seeds only 37 plants came up, showing beyond a doubt that this method was at fault. The other plan was to open a small nursery by Bengali daily laborers, and as soon as the seedlings came up to transplant them. The small nursery that was formed measured about 30 square feet, and in it the seeds came up profusely, and were transplanted as soon as high enough. Of these 240 are living."

171. The operations of the last year have been thus described by the Assistant Conservator: "During the past year eight acres were planted at Sitapahar, and five acres at Pahartallee, near the station of Chittagong. A few seeds were likewise sown near Kassalong.

"The plan of sowing five seeds at each stake was tried, and in addition small nurseries were opened; but, strange to say, very few of the seeds at the stake came up compared with those put into the nurseries.

"The result of the last counting shows 2,130 seedlings to be standing on the Sitapahar site and 1,129 at Pahartallee, whilst out of 200 seeds not one has come up at Kassalong; but this I am not surprised at, as they were put in at stake, and for some reason the seed will not germinate when so sown. Most probably the soft earth in the *thullees* retains the water which cannot escape through the hard sides of the holes, and thus rots the seed. The seedlings average one foot in height, and are at present going through the most trying weather; a little rain would do them a deal of good.

172. "The great and I may say the only drawback to extensive plantations is that we cannot rely on getting seed from Burmah delivered in time. Last year the seed arrived in the middle of May; and as it takes fully one month for it to germinate and another month before it is fit to transplant, it is the middle or end of July before the transplants are fairly in the ground, and then they have hardly time to settle and throw out new leaves before the rains cease, and they have to struggle through the ensuing draught, which in many cases cripples or kills them."

173. The Assistant Conservator describes the operations of the current years as follows: "This year the land between the Holingamara Hill and the Kaptie has been selected, and about 100 arces prepared. Nurseries for about 10 maunds of seeds are being dug, and are nearly ready. I may say they would have been ready long ago, but the delay caused by the seed not having arrived from Burmah, which, though written for and remitted against in December and promised in February, has not yet arrived; and I have had purposely to delay the nurseries in order to avoid having to dig them again.

174. "It is proposed this year to put in a small crop of cotton with the teak as a means of reducing the cost of planting. The measure has to be done on a limited scale to guard against the possibility of not getting sufficient labor, and if found to answer this year, it may be the means of our eventually getting the hill-men to plant regularly with their jooms. It is likewise intended to fill up all vacancies in last year's plantation, and for this purpose suitable nurseries have been prepared in both localities."

175. The cost of the operations amounts to Rs. 410-13-9 at Sitapahar, or Rs. 51-6 per acre, and to Rs. 324-14-6 at Pahartallee, or Rs. 65 per acre. It should be noted that the plantations are only very thinly stocked. Mr. Davis gives the number of plants alive at Sitapahar at 2,130, and those at Pahartallee at 1,129. The areas are eight and five acres respectively; the planting, it is believed, 6 feet by 6 feet, and consequently the failures amount to 78 per cent. at Sitapahar and to 81 per cent. at Pahartallee. These results, especially when coupled with the expenditure, are unsatisfactory. The Conservator considers it necessary to state here that he does not approve of the views expressed by the Assistant Conservator regarding the failure of the germinating of teak seed sown at stakes.

Plantation Records.

176. Records of the plantation operations have not been kept regularly; and with a view to regulating the subject, the Conservator of Forests has drawn up a set of rules, copy of which will be found in Appendix E. If these rules are strictly adhered to, we shall obtain a complete history of the artificial forests.

Teak in Bengal generally.

177. The question whether teak should be largely introduced into Bengal, has been extensively discussed during the last few years, and the Conservator has bestowed special attention upon the subject. In the Bengal plains teak will doubtlessly grow into large trees, but it is just as certain that it will not form fine stems. Any one who looks closely at the trees growing at Calcutta will at once discover that the stems, boles, are not only short for timber

trees, but usually badly shaped, fluted, so that the generality of trees will not yield fine beams. In the plains of Behar similar observations can be made. The Conservator has measured and examined the larger trees at Bankipore, Arrah, and Sherghotty, and obtained the following results :—

Number.	Girth at 4 feet above the ground.	Length of bole.	Estimated cubical contents of bole.	Height of trees.	Remarks.
		At Bankipore.			
1	5′ 6″	15′	25	From 40 to 70′	Stem irregular.
2	7′ 9″	8′	26		Horizontal section of stem star-shaped or fluted. At eight feet divided into two branches.
3	5′ 8″	10′	19		Above ten feet all branches.
		At Arrah.			
4	7′ 10″	16′	48		Very bad shape, fluted.
5	5′ 8″	20′	25		Less fluted than former, but crooked
6	5′ 6″	12′	12		Shape tolerably good, but falling off in girth from eight feet upwards.
7	4′ 9″	24′	20		Little fluted; fairly shaped, not quite straight. This is the best tree at Arrah.
8	3′ 7″	10′	6		Badly shaped.
		At Sherghotty.			
9	9′ 11″	15′	60	From 40 to 60′	Much fluted, and badly shaped altogether.
10	8′ 6″	10′	30		Badly shaped, fluted, and falling off in girth towards the upper part
11	7′ 6″	24′	24		Badly shaped, fluted.
12	7′ 5″	15′	34		Ditto.
13	7′ 4″	16′	28		Shape tolerably good, but falling off in the upper part on account of large branches.
14	7′ 0″	7′	20		Fluted, above seven feet all branches.
15	7′ 0″	20′	30		Fairly shaped, but from ten feet upwards only half the girth on account of side branches.
16	6′ 11″	12′	25		Fluted, but stem not very bad
17	6′ 7″	4′	11		Above four feet divided into three branches.
18	6′ 3″	15′	20		Badly shaped. At ten feet two large side branches.
19	6′ 3″	15′	18		Badly shaped, falling off from ten feet upwards on account of side branches.
20	6′ 1″	7′	15		Fluted, above seven feet divided into branches.
21	6′ 1″	14′	22		Up to eight feet well shaped, above that badly on account of large branches.
22	6′ 0″	16′	20		At eight feet divided into four branches, one being a straight continuation of the lower stem, upper eight feet of bole only four feet girth
23	6′ 0″	12′	20		Badly shaped.
24	6′ 0″	16′	20		Upper part falling off considerably on account of large branches. Shape otherwise fair.
25	5′ 8″	10′	18		Bad in every way.
26	5′ 5″	12′	20		Lower part fairly shaped; from eight feet upwards only half girth.
27	5′ 5″	10′	18		Fairly shaped, but lower part fluted.
27	.....	.....	664	.....	
Average per tree			24 6	.....	

The above data prove that teak will grow into large trees in the Behar plains as far as girth is concerned. What time was necessary to produce the trees cannot be stated with certainty, as no reliable data regarding the age are obtainable; but it is believed that the oldest trees have been planted about 75 years ago.

178. Regarding the quality of the timber no doubts need be entertained. Experiments made by the Executive Engineer, Dehree Workshop Division, with teak grown at Arrah, show that its breaking strength is 16⅔ per cent. greater than that of Moulmein teak. It is described as close-grained and sound. None of the trees contained in the preceding list show signs of unsoundness.

179. In one very important point, however, teak grown in the Behar plain fails, and that is in the shape of the stems. In Burmah the teak localities are classified according to the higher or lesser regularity of the stems produced in them. The slopes of the Pegu Jomah produce generally regularly shaped and tall stems yielding good logs up to 70 feet in length, and that is the class of timber which is exported. On alluvial soil or in unfavorable localities generally, on the other hand, teak is liable to produce stems which are not only short, all the rest being branches, but they are, moreover, irregularly shaped. Of such trees a horizontal section shows usually the shape of a star, and it is this class of timber which is now produced in Behar. To grow in these localities teak which can compete with that imported from Burmah, and for all purposes where long beams are required, is out of the question; but, on the other hand, timber fit for most local purposes can be produced. The trees enumerated in the preceding list will yield logs from 4 feet to 24 feet in length. They have grown up single, and consequently the formation of large side branches has been favored. If teak is, on the other hand, raised in closed plantations and properly attended to, clear stems of 20 feet and upwards will be produced.

180. It appears to the Conservator that in the late controversy regarding the rearing of teak near or beyond its northern limit, the standard of trees to be produced has been put too high. What is meant is, that from several sides it has been made a condition to produce teak similar to that imported from Burmah, or none at all. Now, in the Behar plains, except where sal grows, there is hardly any species amongst the indigenous timber trees which will produce a larger piece of timber than teak; and as the latter is infinitely superior in quality, it is quite evident that, if any trees at all are to be raised, teak should be one of them. On the other hand, the establishment of mixed plantations is strongly advocated.

181. The reproduction of teak will not be found very difficult, judging from what may be seen at Sherghotty. In the old cutcherry compound at that station a number of old teak trees are growing, the seed of which has, since the abandonment of the cutcherry, produced quite a little forest of teak seedlings and saplings around the old trees. And again, seed fallen from trees growing on the Grand Trunk Road near Sherghotty has germinated, and a number of saplings have thus been produced without any artificial interference.

182. The above data are sufficient to prove that the climate of the Behar plains does not seriously interfere with the vitality of teak, although it differs considerably from that in localities where teak is known to thrive.

183. At the station of Hazareebaugh teak has been successfully introduced. The measurements of the larger trees are subjoined:—

Number.	Girth at 4′ above the ground.	Length of bole.	Estimated cubical contents of bole.	REMARKS.
1	8′ 0″	10′	36	Star shaped; fluted.
2	10′ 2″	7′	42	At seven feet divided into four branches; fluted, badly shaped.
3	5′ 10′	12′	18	Fairly shaped, little fluted.
4	7′ 6″	11′	25	Above eleven feet divided into three branches; much fluted.
5	6′ 5″	12′	20	Shape tolerably good, little fluted; above twelve feet divided into four branches.
6	9′ 1″	10′	40	Tolerable shape; above ten feet divided into three branches.
6	.....	.....	181	
	Average per tree ...		c. feet 30	

On the whole there is little difference between the teak at Hazareebaugh and that at Arrah, Bankipore, and Sherghotty.

184. In the Sikkim terai no old trees are available which could assist us in coming to a conclusion, but the young trees in the Bamunpokree plantation have grown well so far. Since the present rains have set in, however, it has been reported that a good many of the five years old trees as well as of those two years old have lost their leading shoots. This may be due to want of vigour in the upper part of the stem, but it may also be due to the effect of a jungle fire, which passed over the plantation just before it was made over by the Cinchona Department to the Forest Department. One fact is not favorable, however, and that is the tendency which the trees have of throwing out strong side branches low down. The way to meet this, if possible, is close planting, not further apart than four feet, and pruning.

185. In Assam old teak is found in a number of stations, as for instance in Gowhatty, which is situated immediately on the banks of the Brahmaputra on a granitic substratum covered by a soil consisting of loam and clay. The oldest teak trees are said to have been planted in 1836, and consequently now 37 years old.

The following are the measurements of the more conspicuous trees:—

Number.	Girth at 4′ above the ground.	Length of bole.	Estimated cubical content of bole.	Height of tree.	Remarks.
1	13′ 1″	...	20	From 30′ to 50′	No bole at all below, divided at 9′ 6″ into four branches, of which one gives a bole of 6′ 8″ girth and 15′ length; the other bad.
2	8′ 9″	...	10		At 4′ 3″ divided into two branches, of which one gives a bole of 5 6″ girth and 10′ length. This tree is bad in every respect.
3	8′ 7″	12′	20		At 4′ 6″ divided into two branches, one being a straight continuation up to 12′ in all, and 5′ 7″ girth. Badly shaped.
4	8′ 6″	15′	35		Very much fluted; at 10′ several side branches, and stem falling off considerably above that.
5	8′ 3″	9′ 6″	25		Divided at 5′ 8″ into two branches, one being a straight continuation of lower stem. Badly shaped, fluted.
6	7′ 2″	20′	25		At 10′ divided into three branches, of which the centre one is a straight continuation of the lower stem. Upper half of bole only one-third the girth of lower half. Stem fluted, but not very badly.
7	6′ 11″	8′	20		Very badly shaped, fluted.
8	6′ 7″	18′	20		Stem straight; lower part somewhat fluted, but not badly; upper part well shaped.
9	6′ 4″	14′	18		Badly shaped, fluted.
10	6′ 3″	8′	12		Bad shape, fluted.
11	6′ 1″	13′	15		Bad shape, fluted, and falling off in girth.
12	6′	9′	15		Bad shape, fluted.
13	4′ 11″	...	.....		Originally two shoots, of which one seems to have been cut some time ago; present stem extremely inferior in every respect.
14	4′ 4″	7′	7		Bad shape and crooked.
15	4′ 1″	10	10		Ditto ditto.
Total 15	105′ 10″	...	252	...	
Average per tree.	7′ 1″	...	17	...	

From the above it will be observed that apparently teak will grow in lower Assam to a large size as far as girth is concerned, and in a remarkably short time; but at the same time the stems of the present trees are of an extremely inferior shape, and it is doubtful whether fine long stems approaching those in the teak forests of Burmah will be produced, even in well cared for and properly treated plantations.

186. The trees growing at Jaipore in Upper Assam have been mentioned in paragraph 166, and also the unhealthy state of the trees in the Makoon plantation, making it very doubtful whether teak will thrive in Upper Assam.

187. The climate of the above localities differs not only in one place from that in the other, but also from that in localities where teak is known to thrive. The following table gives rainfall and temperature for Rangoon, Patna (Bankipore,) Gowhatty, and Debrooghur :—

Name of Station	Rainfall.	Temperature		
		Annual mean	Mean during November to February.	Actual minimum
	Inches	Degrees	Degrees	Degrees
Rangoon	85	79	77	59
Patna	45	77	65	38
Gowhatty	63	76	67	48
Debrooghur	117	73	63	...

In Patna the rainfall is about half that in Rangoon, the mean temperature from November to February is twelve degrees, and the actual minimum twenty-one degrees lower, and neverthless teak is not interfered with in its vitality at Patna. The rainfall at Gowhatty is about three-fourths that of Rangoon ; the winter temperature is ten degrees, the actual minimum eleven degrees lower than that at Rangoon, and teak grows in a manner slightly inferior to that at Patna. At Debrooghur in Upper Assam, on the other hand, the rainfall is considerably higher than at Rangoon, the winter temperature at the same time 14 degrees lower, and the consequence "appears" to be a cold dampness which interferes with the vitality of teak. Whether the latter is the case, or whether the dying off of the young teak at Makoom is caused by the attack of insects or other animals, rats, will have to be ascertained by closely watching them.

188. To sum up now, it may be said, teak of inferior and moderate quality can be produced in the Bengal plains, Behar, and in Lower Assam, but there is no proof as yet to show that superior teak can be produced in the Sikkim terai or in Lower Assam, and in Upper Assam it appears doubtful whether it will thrive at all.

189. *Mahogany.*—This tree grows well in the Bengal plains, where large specimens are found in different localities. Whether it will grow in Assam appears doubtful. A number of seedlings have been planted out this year at Bamunpookree, but nothing can be said of the result as yet.

190. *Caoutchouc.*—India-rubber trees grow in all parts of Bengal, but luxuriantly only in the moist forests along the foot of the hills and lower parts of Sikkim, Bhutan, Assam, Cachar, Munipore, Lushai country, and most likely Chittagong. It is also found in large numbers east of Assam in Burmah. The most favorable province in India appears to be Assam, especially on the lower hills in the east and north of that country. Up to the present only small experimental plantations have been made, but a plan of establishing them on a large scale is now under discussion. The site proposed for rubber plantations in the first instance is the Chardooar forest situated just under the foot of the Himalayas and about 25 miles north-west of Tezpore. The area available amounts to 200 square miles covered with dense evergreen mixed plain and lower hill forest.

191. Regarding the mode of planting, different views have been advanced. Dr. Henderson, Superintendent, Botanic Gardens, Calcutta, proposes to plant caoutchouc 15 feet by 15 feet, three cuttings to be put in each planting spot. This would make 225 planting spots, or 675 cuttings per acre. At the age of 5 to 15 years, according to circumstances, tapping is to begin, each alternate tree to be tapped until it dies, leaving a plantation of 30 by 30 feet containing 48 trees per acre, which are to remain and supposed to yield "as the very minimum" Rs. 5 each tree, or at the rate of Rs. 240 per acre per annum. Mr. Mann,

on the other hand, proposes to clear lines 20 feet broad, 100 feet apart from centre to centre, and to plant cuttings 50 feet apart in the lines, or nine trees per acre. As soon as the trees close up, every alternate tree in the lines is to be tapped until it dies, leaving four to five trees per acre.

192. It appears to the Conservator that the best method is likely to be found between the two mentioned above. He would propose that lines 50 feet apart be cleared 10 to 20 feet broad, the trees to be cut and pushed to the uncut portion (proposed by Mr. Mann), and that the India-rubber be planted 25 feet apart in the lines. This would give 35 trees per acre. As soon as they begin to close up, every alternate tree in the lines should be tapped until it is dead, leaving a plantation 50 feet by 50 feet or 17 trees per acre. These distances have been derived from the size of a tree at Jaipore, the age of which was given as 18 years. This tree occupied an area of 2,500 square feet, or just what has been proposed above, and from its appearance there seems to be no doubt that closer planting will entail an expenditure out of proportion to the very doubtful increase of returns. If we plant 15 feet by 15 feet, the whole area must be taken in hand, whereas in the other case we have to look only after two-fifths of it. The large trees now found which yield Rs. 5 per annum occupy from one-fourth to one acre of ground each, and there is no doubt that Dr. Henderson's estimate of a return of Rs. 240 per acre per annum is far too high. In the Conservator's opinion the return cannot safely be put down higher than Rs. 20 per acre per annum, beginning from 10 to 15 years after planting. Tapping trees at a very early age will not prove an advantage, as they will cease to grow as soon as they are being tapped. It will be found preferable to allow them to grow to a certain size first, and for this reason there will be no advantage in planting closer than 50 feet by 25 feet. Mr. Mann proposes to plant the trees within the cleared strip of 20 feet on alternate sides. It will be better, however, to plant them in a straight line in the centre.

193. India-rubber can be raised from seed or cuttings. The latter system gives us at once a tree some 5 or 6 feet high, which is not likely to be smothered by grass and jungle, but if the plantations are to be carried out on a large scale, it will be questionable whether a sufficient number of trees fit to yield all the cuttings and within a reasonable distance will be found. Moreover, trees which are used for the production of these cuttings cannot be tapped at the same time, which loss of revenue will have to be put down against the cost of the plantations. Another point is whether trees from cuttings will produce such fine trees as those from seed. Judging from the general character of fig trees, the question might be answered in the affirmative; but still there is no absolute certainty, as our present large trees in the forests have all grown up from seed. Under these circumstances it should be taken into consideration whether it would not be preferable to establish regular nurseries, in which the seed is first sown in carefully prepared seed-beds, transplanted into a nursery as soon as it is about three inches high, and allowed to remain until it has attained a height of (say) 2 to 3 feet, when it is planted out in the forest. On the whole the Conservator is rather in favor of the last mentioned method; but until the saplings become available, cuttings must be made use of.

194. Regarding the cost of the plantations nothing definite can be said at present. Mr. Mann estimates the cost of his plantations at about 13 annas per acre, but that is evidently altogether under the mark. The Conservator does not think the plantations, as proposed by him, can be made at the outset for less than Rs. 20 per acre; but after the work has been started in a systematic way, the expense ought to come down to Rs. 12 or 10 per acre.

195. The area to be planted per year is regulated by the amount granted for the purpose. During the first year a limited area only, say 100 acres, should be taken in hand, with the view of avoiding waste of money, which will always take place to some extent on starting operations, and in order to prevent a break down of the whole by starting on too large a scale at once. In the second year the area to be planted should be regulated by the experience gained during the first, and by degrees it may be extended as much as appears advisable.

196. The most difficult point will be the labor question. In Upper Assam local labor is not available, or on a very small scale only. In Lower Assam Mr. Aylmer has succeeded this year in making upwards of 30 acres of teak and smaller areas of rubber, toon, and sissu plantations entirely by local labor. This officer was the first who succeeded in Burmah in drawing local labor to the teak plantations by paying the current daily rate to every cooly who came, and by giving the men perfect liberty to go again when they liked. During the present year he has adopted the same system in Assam, and the result is that he has quite as much labor as he wants; in fact, the men are only afraid of being discharged for want of work. It is true that the happy way in which Mr. Aylmer treats the men has much to do with his success, and perhaps not every officer would be equally successful. It is believed that local labor is available in the Durrung district, and Mr. Mann appears to think that the plantation work can be done without going to the necessity of importing labor.

197. Dr. Henderson is now trying to obtain plants and seed of *Siphonia elastica*, the plant which furnishes the greater part of the South American rubber, believed to be superior to Assam rubber. Until this species has been successfully introduced, however, we shall have to do with our own *Ficus elastica* only. Next year, it is hoped, will find the work fairly started.

SECTION V.

Yield of the Forests.

198. The timber operations of the Forest Department during the year have been trifling.

In *Cooch Behar* one sal log, 35 small logs, 302 sleepers, and 517 planks and scantlings, measuring 1,055 cubic feet in all, have reached the station depôts during the year. The fact is that more timber than could be sold has been cut and brought out in former years, and during the present year it was resolved upon first to clear out the timber already on hand before investing further money. With this object 845 sal logs, 251 small sal logs, 200 logs of temperate trees, 6 sleepers, and 288 planks and scantlings were sold off. There are now still—

	6,821	logs,
	217	small logs,
	25,475	sleepers,
	737	planks and scantlings,
Total ...	33,250	pieces,

lying partly in depôts and partly scattered about the forests. The timber from temperate trees near Darjeeling is being sold off by auction at the rate of about 100 logs per month. The greater portion of the sal timber, it is expected, will be taken by the railway authorities for the Darjeeling line, if it is to be commenced. The logs lying in the Buxa forest will gradually be carried to Alipore and sold by auction. For this work three elephants have been applied for.

199. The results of auction sales of timber from temperate trees are not satisfactory, but it should be taken into consideration that the timber is old and partly rotten, and in addition the so-called "sirdars" have evidently combined to obtain the timber below the real value. The only way to meet this combination is to stop the sale of standing timber until the material in the depôts has been disposed of. If the auctions are held periodically, the combination is sure to break up, and in fact signs to this effect were visible at the last sale. The following table shows the prices obtained :—

Auction held in	February,	Rs.	0	0	11	per	cubic foot.
" "	May,	"	0	1	7	"	"
" "	June,	"	0	1	1	"	"
" "	July,	"	0	1	7	"	"

The logs sold at the first auction were of very inferior quality. The expenditure incurred in bringing the logs to depôt has not been covered, there being a loss of Rs. 841-3-11 on the 400 logs sold, due almost entirely to the

unfavorable results of the first sale. It will be advisable to go on with the sales, as the timber will otherwise be destroyed altogether.

200. The auction sales of sal in the Western Dooars have been more favorable as will be seen from the subjoined data:—

Quantity sold	..	..	12,917 cubic feet.
Amount realized	..	..	Rs. 9,156 0 0
Total expenditure	..	..	„ 6,509 0 10
Net surplus ..	. ..	..	„ 2,646 15 2
Or per cubic foot	..	..	„ 0 3 3

This timber has all been dragged by coolies to the floating creeks or the cart roads. If the elephants applied for are sanctioned, the net proceeds from the remaining logs will be considerably higher.

Assam.

201. In Assam 50 sal logs and 191 other logs were brought to depôt. The sal logs, measuring 780 cubic feet were cut in the Kamroop open forests and brought into depôt at Gowhatty by a contractor for Rs. 0-8-10 per cubic foot. They were sold by public auction and fetched Rs. 0-15-2 per cubic foot, leaving a net surplus of Rs. 0-6-4 per cubic foot. The same contractor undertook to deliver an additional hundred logs, but failed to do so for want of elephants. These logs are now being dragged to the river by Government elephants.

202. The 191 logs from the evergreen forests in Upper Assam form part of a number of logs cut some four years ago. They were brought to depôt by departmental agency; 70 nahor, 59 ajhar, and 345 other logs, or 474 in all, were sold during the year. This closes the experimental timber operations in Upper Assam, the results of which show that the price of timber other than sal is too low to make the working by departmental agency remunerative. The total loss on the operations amounts to Rs. 2,839-0-5.

Chittagong.

203. No operations have been carried on by departmental agency. Regarding the quantities of material removed from the forests by purchasers, the Commissioner writes as follows:—

"Regarding the yield of the forests, it has been reported that 1,056 tons of timber in logs have been brought out of the forests against 433 tons during the previous year, showing an increase of 623 tons; in boats 1,089 tons against 244 tons during the preceding year, likewise showing an increase of 845 tons; whilst in beams and planks the outturn of the year of report is only 19 tons against 841 tons in the previous year, exhibiting a decrease of 822 tons. The total yield of timber from the Government forests this year is 2,164 tons against 1,518 tons of the previous year.

"There is likewise an increase in the quantities of all kinds of minor forest produce, including house-posts and saplings, which have risen from 8,306 last year to 9,321 this year.

204. "The Assistant Conservator desires to include *krug* and *patti* leaves and *gurjun* oil in the list of taxable articles. The Deputy Commissioner is however not prepared to support the addition of any fresh articles of taxable forest produce to the schedule already prescribed, as the system at present prevailing of granting leases of the forest products of specified tracts of land already realizes, or should realize, the Government dues on the articles in question.

205. "Mr. Davis says that the practice of taking tolls on the forest produce brought down the different rivers is by far the most practicable and economical means of realizing revenue. He adds—"during the last two months, in addition to the original toll stations, collectors have been appointed on commission to collect tolls on the following small streams, viz. Surta, Droong, Kallapanea, Issamuttee, Shilock, Doloo, Hunger, and Tankwattee. It is likewise proposed to adopt the same course on the Eadgong, Rezoo, and Naaf; but suitable and reliable agents have not yet presented themselves as candidates."

206. "The Deputy Commissioner is much averse to this supplementary plan. He is of opinion that the collecting of any tax "on commission" cannot fail to be the cause of great inconvenience and grinding oppression to the people at large, unless the collectors are men of well-known probity and position; and even then the Deputy Commissioner would regard this mode of collection as a *pisaller*, an alternative only to be resorted to when all other means failed.

207. "I (the Commissioner of Chittagong) am not disposed to attach much weight to the objections raised by the Deputy Commissioner. They would be equally valid if raised in connection with every system of collections in which native agency has to be employed. The Deputy Commissioner apparently forgets that the system he inveighs against is very much in vogue in the management of our khas mehals, and has not been found in practice to be attended with the 'grinding oppression and inconvenience' that he apprehends. It is in fact the best and readiest means of ascertaining the amount and value of any particular trade or traffic, and in this view I propose to continue the system for the present year. Care, of course, is necessary in the selection of agents or tehsildars, the importance of which the Assistant Conservator appears fully alive to. The Mong Rajah has been appointed to collect on the Surta, Halda, and Kalapanea; a nominee of the Mong Rajah, for whom the latter is surety, has been appointed for the Doloo, Hunger, and Tankwatee; whilst for the appointment for the Silok and the Issamuttee no satisfactory arrangements have as yet been made."

Chota Nagpore.

208. An attempt was made during the year to float sal timber from the Sarunda forests down the Brahmini River to Cuttack; but as the results have been mentioned in the resolution on last year's report, it is unnecessary to enter here upon the subject. The Conservator will, however, take up the question again when he visits the Chota Nagpore Division.

209. The exact quantities of material removed from the forests by purchasers cannot be given, as the data for Assam and Dacca are not available. Those for the former province for 1873-74 will be given, but no arrangements have been made as yet to obtain similar data from the Dacca forests.

From the forests of Cooch Behar and Chittagong the following material has been removed by purchasers:—

Cooch Behar Division.

Name of trees.	Number of trees or pieces sold.	Amount realized.	Average amount per piece.	Remarks.
Sikkim Sub-Division.		Rs. A. P.	Rs. A. P.	
Champ (green)	46	512 0 0	11 2 1	
Katoos "	25	218 0 0	8 11 6	
Chalownee "	1	12 0 0	12 0 0	
Book "	11	118 0 0	10 11 8	
Sal "	142	1,422 0 0	10 0 2	
Toon "	18	188 0 0	10 7 1	
Sissu "	2	20 0 0	10 0 0	
Miscellaneous green	...	80 0 0	.. ..	
Firewood (green and dry)	...	336 0 0	.....	
Western Dooars.				
Sal (green)	339	1,052 0 0	3 1 7	334 of these were young trees under 4 6" girth.
Kala Khumbas (dry)	4,678	2,666 8 0	0 9 1	
Champ goals (green)	2	5 0 0	2 8 0	
Sal (green)	24	84 0 0	3 8 0	
Firewood (dry)	...	1 4 0	. .	
Total ...	5,288	6,714 12 0	...	
Deduct—				
Amount due but not realized during the year ...	.....	240 0 0	.....	
Balance ...	.....	6,474 12 0	.....	
Add—				
Amount realized on account of former years ..	.....	30 0 0	.. ..	
Total shown as revenue in Form No. 21, under II. ...	.....	6,504 12 0	.....	

Chittagong Division.

Description of material.	1871-72.	1872-73.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.
Timber in logs	433	1,056	623	.....
,, boats	211	1,089	815	.....
,, beams and planks	841	19	....	822
Total ...	1,518	2,164	646	.....

210. *Caoutchouc* is collected by direct Government agency in *Cooch Behar* only. During the year 1871-72 the collections amounted to 349 maunds 10 seers, and the cost of collecting to Rs. 10 per maund. In September last the Deputy Commissioner of Darjeeling sold the right to collect on the left bank of the Teesta for Rs. 3,400, leaving to the Forest Department only the right bank of the Teesta. The result is that the collections of the present year amount to 57 maunds 2 seers only, and the cost of collection has moreover risen to Rs. 16 per maund. The fact of the collections being made by two different parties multiplied opportunities for theft, which were made use of to the fullest extent. During the coming season it is expected the Forest Department will be the sole collector.

211. The estimated amount of India-rubber brought into the Calcutta market from British and Independent Sikkim stands as follows:—

In 1871	600	maunds.
,, 1872	490	,,
,, 1873	700	,,

212. The rubber mehals in *Assam* have not been sold during the year, but the collections of rubber have been going on all the same, except in the vicinity of the head-quarters of the civil officers. The following is an estimate of the quantities brought into the Calcutta market:—

In 1870	7,500	maunds.
,, 1871	12,000	,,
,, 1872	21,000	,,
,, 1873	11,000	,,

up to the 1st August.

213. A good deal of rubber is brought from Cachar, but the quantities cannot be given.

SECTION VI.

FINANCIAL.

214. The budget estimates for the year 1872-73 were—

	Rs.
Receipts	1,25,000
Expenditure	1,37,000
Deficit	12,000

The actuals of the year are—

	Rs.
Receipts	1,49,852
Expenditure	99,617
Surplus	50,235

These sums include collections by civil officers amounting to Rs. 51,568, and expenditure by civil officers amounting to Rs. 5,131. If the accounts of the forest officers are taken separately, they stand as follows:—

	Rs.
Receipts	98,284
Expenditure	94,486
Surplus ...	3,798

The net result of the year's transactions amounts to Rs. 39,986, the particulars of which are given in (revised) Form No. 28.

215. These figures compare favorably with those of last year:—

	Rs.
Collections in 1871-72	1,39,089
Ditto in 1872-73	1,49,852
Increase in 1872-73	10,763
Expenditure in 1871-72	1,08,339
Ditto in 1872-73	99,617
Decrease in 1872-73	8,722
Surplus in 1871-72	30,750
Ditto in 1872-73	50,235
Increase in 1872-73	19,485

If the collections and expenditure of forest officers only are taken into account, the deficit in 1871-72 amounted to Rs. 20,779, whereas in 1872-73 the department paid its own expenses and realized a surplus of Rs. 3,798. The collections by civil officers in 1871-72 amounted to Rs. 60,529, and in 1872-73 to Rs. 51,568; decrease in 1872-73, Rs. 8,961.

A new method of calculating the value of the year's transactions has been introduced this year, and a comparison of actual profits does not give a fair idea of the respective merits of the two years' transactions. The net profit in 1871-72 was calculated to amount to Rs. 31,429, and in 1872-73 to Rs. 39,986, leaving in favor of the year Rs. 8,557.

216. The contributions of the several divisions differ considerably. In the subjoined statement the expenditure of direction has been distributed equally, and that of the office of forest accounts according to the expenditure in the several divisions:—

Name of Divisions.	Receipts.	Expenditure.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
Cooch Behar	55,111	35,073	20,038	...
Assam	18,354	28,577	.....	10,223
Dacca	14,746	8,410	6,336	.....
Chittagong	61,400	15,504	45,896	.....
Bhaugulpore	241	12,053	.....	11,812
Total ...	149,852	99,617	50,235	.....

The Chittagong division yields the highest surplus, and next to it comes Cooch Behar. The former division has approached the highest yields which can be expected for the present. The receipts of the Cooch Behar division are expected to rise steadily for some time to come. In Assam not all forest produce is credited to "Forests," as for instance the returns from soom trees,

otherwise the division would show a considerable surplus. During the present year the rubber mehals were not sold, which caused also a loss of revenue. The Bhaugulpore division has been closed for the present.

217. The outstandings of the department at the commencement of the year amounted to Rs. 18,475, and at the close of the year to Rs. 11,927. This latter amount, it is expected, will be adjusted during the year 1873-74, but some of the old items will have to be written off as irrecoverable. The details will be laid before Government in a separate communication.

218. It is a recognized principle over all the forest divisions of Bengal that the people inside and immediately around the open forests shall obtain their domestic requirements of forest produce free of charge; it naturally follows that the sales of timber and fuel must be limited, and consequently the receipts under these headings are not likely to rise to any considerable amount, if not exceptional circumstances, as the construction of railways, happen. On the other hand, many of the forests are capable of yielding large returns from minor forest produce, and in this manner the revenue is likely to rise in future years. The treatment of the Sunderbun forests will now soon be decided on, and it is expected that an additional revenue of one and a half or two lakhs will be obtained, so that, all circumstances considered, the financial prospects of the department are good.

SECTION VII.

General.

219. *Elephants.*—Most of the Government forests on the northern and eastern frontier are exceedingly inaccessible, and without elephants forest officers are almost incapable of visiting the greater portion of the area. Too great economy in providing these animals is therefore false economy; and again timber works cannot be carried on successfully in Bengal without dragging elephants. For Assam a sufficient number (eight) of elephants has now been provided. In Cooch Behar we have upwards of 6,000 seasoned logs in out-of-the-way depôts and in the forests, which cannot be brought to market without elephants, and an application for three more animals is now before Government. In Dacca and Chittagong we have no elephants at all. For Dacca two have been applied for, and Chittagong should he supplied with two more. It is sincerely expected that sanction for five additional elephants will soon be accorded.

220. *Survey and working plans.*—The Government of India have during the past year created a separate branch of the Forest Department, the survey and working plan branch, withdrawing at the same time all credits for these purposes from the provincial budgets. Although the Conservator agrees with the principal that this class of work should be carried out according to fixed rules and in a systematic manner, and that more satisfactory results are obtainable if the direction rests in one hand; still he believes that the measure as put into practice is too sweeping, and likely to interfere seriously with the progress of administrations in several provinces. The special branch is now at work in the North-Western Provinces and in the Punjab. After the work has been completed in these provinces, Burmah and the Central Provinces are to be taken in hand. Any one who knows the time required for that class of work must be convinced that the provinces under the Government of Bengal have no chance of seeing the work commenced for ten years to come at least, during which time we are, as it is, condemned to work on in a rough sort of way. Moreover, what we require for the greater portion of the Indian forests at the present moment are simple working plans (to be followed hereafter, if necessary, by more elaborate plans), the compilation of which requires comparatively little time.

The selection of reserves, too, has to be accompanied by a certain amount of surveying, and for both these purposes it is necessary that a small credit should be granted annually. As it is, the selection of reserve in the Dooars and

in Assam has already been seriously interfered with, and it is to be hoped that the Conservator of these provinces may be entrusted with a limited credit for next season's work.

221. *Conservator's tours.*—The present Conservator assumed charge on the 2nd December 1872, and on the 31st of the same month he proceeded to Sikkim, examined the terai and a small portion of the hill forests, drew up instructions regarding the work to be performed, and proceeded to the Western Dooars. Here he examined the sal forests, introduced the two junior assistants, Messrs. Fisher and Johnstone, to the work, and issued instructions on future operations. The Conservator proceeded next to Patna, Arrah, Gya, Shergotty; thence to Palamow, examined the greater portion of that district, proceeded through a portion of the Hazareebaugh district, and returned to Calcutta in the beginning of April. On the 27th of April he left for Assam, visited the sal reserves in the Kamroop district, the plantation on the Kulsi, the Jeerung forest, and a portion of the Khasi Hills. He next proceeded to Debrooghur, marched to Jaipore and Makoon, examined the experimental teak plantation, and returned to Calcutta, which he reached on the 24th July 1873. His report on forest operation in Assam is now before Government.

222. It will be observed that the Conservator's endeavours during his first season in Bengal were to bring the work in the Cooch Behar division on a proper footing and to advise on forest operations in Assam. During the next season he proposes to introduce forest conservancy into the Dacca division, the Garo Hills, and the Eastern Dooars; after which a visit to Chittagong will most likely be found advisable. The Sunderbuns, if taken under management, will also be visited during the year. The western districts, it is expected, will be taken in hand the following year.

PROGRAMME OF WORK IN THE ESTABLISHED DIVISIONS.

223. *Sikkim sub-division.*—All the reserved forests will be examined in detail and classified. A description of each reserve will be compiled as in the appended sample, Appendix D.

The forests will be made accessible. At present many of the tracts in the plains can only be approached on elephants. Roads and paths to and through the forests have to be made. This work will be done so as to divide the forests at the same time into compartments.

Jungle fires do not at all or extremely rarely occur in the upper hill forests, moderately frequent in the lower hill forests, and they are very common in the plain forests. In fact, fires overrun the latter year after year, destroying and injuring endless numbers of seedlings, and causing many of those which survive to grow up into diseased and hollow trees.

An earnest attempt will now be made to keep them for a number of years out of the sal-bearing tracts in the terai, the beginning to be made in the Mahanuddy range.

The cattle grazing will have to be regulated so as to cause the least possible damage. From tracts protected against fire cattle must be excluded altogether.

The sal tracts in the terai must all be cleared of creepers.

The timber operations will be limited for the present to the bringing to market the logs which have been cut some years ago.

The India-rubber trees in the Government forests of Sikkim, it is expected, will be tapped under the direct control of the department.

Plantation operations will be concentrated at Bamunpokree, where teak, toon, sal, mahogany, baobab, and India-rubber will be planted.

224. *Western Dooars.*—The work of selecting reserved tracts has been commenced in Mooraghat, and it will be continued in the Minapooree, Lukeepore, Boraghar, Satalie, Buxa, and Bholka forests. As soon as the work has been completed in one pergunnah, the tracts selected and approved of by the civil authorities should be made over to the Forest Department to be treated in the manner mentioned above in the case of the Sikkim reserves.

The timber operations will be restricted for the present to the bringing out of the logs cut some years ago, the number of which amounts nearly to 3,000.

No plantation operations are to be commenced at present.

Assam.

225. The Conservator has proposed that the following works be taken in hand:—

Gowhatty sub-division.—Demarcation, examination, and description of sal reserves; preparation of preliminary working plan; further selection of sal reserves in the Jeerung forest and of patches along the foot of the hills from the Goalpara to the Nowgong boundary; creation of 50 acres per year of teak, toon, sisu, and sam plantations, also caoutchouc plantations on a limited scale; working of the sal reserves according to a plan to be compiled, partly by selling the timber in the forests and partly by bringing it to market on Government account; protection of sal reserves against fire, and cutting of creepers.

226. *Tezpore sub-division.*—Demarcation, examination, and description of reserves; caoutchouc plantations on a large scale in the Chardooar reserve, 100 acres during the first year, and gradually to be increased to any extent prescribed by Government.

227. *Nowgong sub-division.*—Demarcation, examination, and description of reserves; further selection of sal reserves along the foot of the Khasi Hills; protection of sal reserves against fire, and cutting of creepers on sal trees.

228. In the *Seebsaugor district* the selection of reserves and examination of the soom forests should be proceeded with.

229. The Commissioner of Assam, in forwarding the divisional report, makes the following remarks:—

"To determine what scope forest conservancy should have in Assam, the nature of the actual forest growth must be well understood. We must picture to ourselves a large tract of country thinly peopled, and therefore but partially cultivated; the cultivation of two kinds, wet land cultivation on ground which in its natural state is covered with reeds and gigantic grasses, and this cultivation only is permanent; and high land cultivation, which, except in the case of tea, is constantly shifting and breaking up fresh ground; so that, though the actual quantity of land occupied at one time may be comparatively small, the quantity which has been denuded of its forest growth within a period too recent to allow of the full recuperation of such growth, represents the occupancy of a dense population. So while there are few timber trees that do not require more than half a century for their development, the portions of forest that have been untouched in Assam for half a century and upwards are few and far between; and hence, when a forest area of 4,000 square miles is estimated for Assam, it must be remembered that the greater part of this is what a forester would reckon to be mere rubbish. There is further some reason to suppose that Assam is not naturally very prolific of trees valuable in their primary use as timber; and in this respect the province contrasts most unfavorably with British Burmah. Sal, which is confined to the lower districts of Assam, is pretty well the only really first-class timber tree we have; while in British Burmah, setting aside teak, there are many sorts of timber trees quite entitled to be reckoned first-class; some even superior to sal, though they have failed to obtain repute from having to sustain competition with teak. It would seem that the soil and climate of Assam were more favorable to trees having secondary uses, valuable not for what could be made directly with them, but for what could be got out of them—what they yielded—as tea, caoutchouc, the trees that feed the lac insect or the silk worm. Again, in certain parts of Assam the conditions of soil and climate appear so favorable to the growth of first-class timber trees, that their present scarcity is not of itself sufficient to discourage attempts to plant and propagate them.

230. "I should read Mr. Mann's report, then, in the light of the ideas which have suggested the foregoing remarks; and to begin with, they explain the policy of conservancy that has been pursued, namely, to reserve, and reserve strictly, what we could find of really merchantable timber growth; and to leave the rest to the uses of the local population, controlling them so far

as might be to their greatest benefit; as for instance while allowing ample areas for 'jooming,' restricting 'jooms' in the vicinity of towns or comparatively well-peopled localities, where the supply of fuel was more necessary to the people than the 'joom.'

231. "Mr. Mann reports that forest administration may be said to have advanced a step during the year: and I think it has, and a considerable one. Matters have been got into something like working order. The subordinate Forest officers have been no longer vaguely employed, but have had plenty of occupation assigned them with a definite end; and in the large area of forests that have been demarcated, we have really something to show. Then in the teak nursery on the Koolsee a foundation for plantations has been laid, which may be carried on to any extent; and we have been able to design the Koolsee as a centre for forest operations of every kind. It is situated on the best sal reserve; and we have a tract near it suitable for the experimental cultivation of the caoutchouc; and we propose that it should be the head-quarters of the Lower Assam Forest officer."

Chittagong.

232. The Commissioner writes as follows :—"The Assistant Conservator of Forests has made the following general remarks: 'We have now arrived at a fair knowledge of what we possess in the shape of forests; and, with the exception of the Fenny and Lushai country, we know exactly what we have left; and it remains now to be decided what course should be adopted as the most suitable to the people, country, and the interests of both. We have an enormous demand on our forests both for timber and other forest produce; and we must make our existing stock last as long as it can with as little hardship as possible to the inhabitants, both of the hills and the adjoining districts. I have shown what my views are with regard to the forests, and it remains to be decided what action should be taken.

233. "'We are as yet without any rules or regulations of any kind. It is only reasonable to ask for rules that can really be of service. One code for a whole province is, I submit, detrimental to the working of all divisions save the one it was drawn out to suit. The country products and people in this division are vastly different to any other, and require special rules and an entirely different system of working as regards details; though the great aim and objects of the whole undertaking are identical. What we require at present are effective rules for the better management of the tolls with power to regulate the size and quantity of timber to be felled in any fixed locality, as also rules for the protection of plantations from cattle-trespass. The whole matter of rules is dependant on the action taken with regard to reserves; and therefore, until definite orders are passed on that subject, it would be premature to prescribe rules.

234. "'Of the establishment under me, I have only to say that I have had opportunities of watching the working of the Chunderkonah toll station—the largest of the stations—and I am satisfied that very little (if any) malpractice is carried on. There may be a little petty larceny which is difficult to detect, but I do not think more than would exist under the best paid and supervised staff.'

235. "The Deputy Commissioner observes the working of the division from a financial point of view is most satisfactory. From an administrative point of view, however, I regret to state that the aspect of affairs does not seem to me altogether bright. As I have previously pointed out in this letter, we are making a great money profit now at the expense of the future; and I would prefer to see the receipts less, and the expenditure in reproductive works and duties of supervision more.

236. "Captain Lewin (the Commissioner writes) is evidently unaware of the state of affairs in the current year, and of the progress that is taking place in the matter of plantations. A sum of Rs. 6,000 has been sanctioned for expenditure under this head during the current year, whereas in no previous year has the sanction exceeded Rs. 1,000. By way of illustration, I may

mention that, whereas 13 acres were planted out last year, the area planted out during the current year will probably exceed 100 acres; besides which the vacancies in last year's plantations will be filled up. In conclusion I have to recommend for the present year a policy of complete inaction. I recommend that nothing whatever be done, but that we rest on our oars, and watch the working of the department for another year. So far it is working smoothly, prosperously, and well; and in recommending inaction, I am simply advocating leaving well alone."

The Conservator's opinion is that forest matters in Chittagong require a thorough investigation.

237. *Office of Forest Accounts.*—Since Mr. Home assumed charge of this branch of the department, its working has been satisfactory, and the accounts of the current year have been brought to agree with those kept in the Accountant-General's office—a success which, it is believed, has never been achieved before. As long as a fully competent officer is in charge of the forest accounts, it is all well and good; but unfortunately this is not always the case; and the responsibility resting on the Conservator of Forests, gives him a great deal of anxiety. In a large charge like this, where he has to travel over immense distances, and to be absent from head-quarters about nine months in the year, he can hardly do justice to the accounts. It would lead too far to enter here upon the reasons which led to the establishment of a separate office of forest accounts, and to the audit being given to the Conservator of Forests; but there are serious doubts whether the present arrangement answers well. In fact it would be only fair to the Conservator to adopt one of the following two plans:—

(1) To appoint a special accounts officer to the Forest Department, to make him directly responsible for the correctness of the accounts, and to arrange for a periodical inspection and examination by the Accountant-General or his assistants; or

(2) To hand back the audit to the legitimate controller—the Accountant-General.

The Conservator of Forests is of opinion that the drawbacks which led to the abandonment of the second system are to be found not so much in the faultiness of the system itself as in the manner in which it was worked in practice.

238. *Services of officers.*—Most of the officers of the department have worked well during the year. Mr. A. L. Home, Deputy Conservator of Forests, on joining these provinces early in December, assumed charge of the office of Forest Accounts, and he also examined the Sunderbuns. He has done full justice to his reputation as a most useful and hard-working officer.

Captain Losack, Deputy Conservator of Forests, also has worked very hard to bring the Cooch Behar division into proper working order.

Mr. G. Mann, Assistant Conservator of Forests, 1st grade, returned from sick leave in January, and assumed charge of the Assam division, where he has set to work with great energy.

Of Mr. Davis, Assistant Conservator of Forests, the Commissioner of Chittagong writes that "he has given complete satisfaction in the discharge of his duties, and that he considers him an intelligent, hard-working, and zealous officer."

Mr. A. P. Aylmer has done good service during the year. He selected several reserves in a judicious manner, and he deserves great credit for the successful manner in which he has started forest plantations in Assam.

Mr. J. S. Gamble has done a very creditable piece of work in the examination of the Mahanuddy terai range, the report on which is appended to this report. He promises to become altogether an excellent officer.

The two junior assistants, Messrs. Fisher and Johnstone, who arrived in December from England, have taken kindly to the work, and demarcated and surveyed the proposed reserves in Mooraghat to the satisfaction of the Conservator. They are now occupied in studying the vernacular.

Form No. 21.

FOREST DEPARTMENT, BENGAL.

Annual summary of Revenue and Expenditure in the several Divisions during 1872-73.

Classification.	Direction.	Cooch Behar.	Assam.	Dacca.	Chittagong.	Bhaugulpore.	Total.
Receipts.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
I.—Sale of timber brought to depôt by Government Agency	.....	22,691 9 0	2,153 10 0	.....	.....	.....	24,845 3 0
II.—Ditto firewood and charcoal, removed by purchasers	.....	6,504 12 0	.....	.....	.....	.....	6,504 12 0
III.—Duty on foreign timber	.....	.....	.....	.....	.....	.....	.....
IV.—Permit fees, rent from squatters, &c., (includes Civil Officer's collections)	116 12 9	16,883 7 9	16,119 13 0	14,739 6 3	61,400 0 3	74 0 0	1,09,333 8 0
V.—Grazing dues and fisheries	.....	710 0 0	.....	.....	.....	.....	710 0 0
VI.—Sales of fruits, babool pods, India-rubber, &c.	.....	8,233 2 7	.....	.....	.....	.....	8,233 2 7
VII.—Sale of confiscated and waif timber	.....	.....	.....	.....	.....	.....	.....
VIII.—Fines and forfeitures	.....	39 6 8	28 0 0	.....	.....	11 13 5	79 4 1
IX.—Miscellaneous receipts	37 2 0	49 0 0	52 14 0	7 0 0	.....	.....	146 0 0
Total	153 14 9	55,111 6 0	18,354 5 0	14,746 6 3	61,400 0 3	85 13 5	1,49,851 13 8
Expenditure.							
A.—Conservancy and Working.							
I.—Timber expenses	.....	4,570 1 2	732 3 11	47 5 7	.....	814 0 0	6,163 10 8
II.—Purchase of cattle	.....	5,203 4 3	2,626 9 3	29 14 0	209 8 0	98 12 0	8,167 15 6
III.—Feed and keep of cattle	.....	1,884 5 7	1,684 9 1	106 4 8	5 4 0	434 15 0	4,115 6 4
IV.—Rent of leased forest	.....	.....	2,301 13 4	.....	.....	.....	2,301 13 4
V.—Charges on collecting revenue on grass, &c.	.....	570 5 0	.....	.....	.....	.....	570 5 0
VI.—Plantations	.....	1,645 9 9	1,501 15 1	.....	809 6 3	.....	3,956 15 1
VII.—Forest work	.....	271 10 0	68 10 0	.....	225 0 0	.....	565 4 0
VIII.—Forest survey	.....	155 6 2	438 5 10	3 9 8	150 0 0	100 10 7	845 0 3
IX.—Experiments on timber	.....	22 0 0	.....	1 0 0	.....	.....	23 0 0
X.—Communications and buildings	.....	1,463 4 0	57 13 8	21 10 6	202 8 0	71 4 0	1,816 8 2
Total	.....	15,785 13 11	9,409 0 2	209 12 5	1,601 10 3	1,519 9 7	28,525 14 4
B.—Establishments.							
I.—Salaries	21,683 14 3	9,876 14 6	10,489 7 1	2,472 10 6	7,296 0 0	4,018 9 9	55,837 8 1
II.—Travelling allowances	4,871 5 4	2,762 3 11	1,801 15 9	616 4 11	1,006 15 9	914 14 3	11,973 12 11
III.—Contingencies	1,011 4 9	502 5 0	930 11 3	105 15 1	290 8 0	438 11 10	3,279 7 11
Total	27,566 8 4	13,141 7 5	13,222 2 1	3,194 14 6	8,593 7 9	5,372 3 10	71,090 11 11
Grand Total of Expenditure	27,566 8 4	28,927 5 4	22,631 2 3	3,404 10 11	10,195 2 0	6,891 13 5	99,616 10 3

Form No. 22.

FOREST DEPARTMENT, BENGAL.

Annual Abstract Account of the Cash Transactions of the Department, during the year 1872-73.

Dr.

	Rs. A. P.	Rs. A. P.
To cash in hand on 1st April 1872	4,718 1 8	
„ Revenue received	*1,19,851 13 8	
„ Remittances from State treasuries . ..	90,778 1 5	
„ Advances recovered . . .	†17,712 2 10	
„ Cash recoveries of service payments . . .	4 4 0	
„ Value of service books . .	0 9 0	
„ Uncovenanted Service Family Pension Fund .	902 13 0	
„ Income Tax .	433 14 0	
		2,70,401 11 7
Total .		2,70,401 11 7

Cr.

	Rs. A. P.	Rs. A. P.
By expenditure of the Department	99,616 10 3	
„ Remittances to State treasuries	1,57,382 1 4	
„ Advances made	10,863 15 0	
„ Value of service books	0 9 0	
„ Provincial Services	525 0 0	
„ Refund of Income Tax	1 10 0	
„ Cash balance in hand on 31st March 1873	2,011 14 0	
		2,70,401 11 7
Total		2,70,401 11 7

Form No. 23.

FOREST DEPARTMENT, BENGAL.

Annual Statement of Outstandings and Liabilities of the Department on Account of Contractors and Disbursers, 1872-73.

Divisions.	Department Debtor			Department Creditor.			Balance Due.	
	At commencement of the year	Recoveries in cash and value of supplies, and work done during the year.	At close of the year.	At commencement of the year	Payments made during the year	At close of the year.	To department (outstanding).	By department (liabilities).
		Rs A P	Rs A. P.	Rs. A. P.	Rs. A P.	Rs. A. P.	Rs. A. P.	
Cooch Behar	...	9,395 0 7	9,395 0 7	14,731 7 0	2,498 13 3	17,230 4 3	7,835 3 8	. . .
Assam	. .	5,987 11 0	5,987 11 0	3,556 4 3	6,003 8 6	9,559 12 9	3,572 1 9	... ..
Dacca ...		72 8 3	72 8 3		84 8 3	84 8 3	12 0 0	... ..
Bhangulpore ..		1,956 15 0	1,956 15 0	187 12 2	2,277 1 0	2,464 13 2	507 14 2	. .
Total	..	17,412 2 10	17,412 2 10	18,475 7 5	10,863 15 0	29,339 6 5	11,927 3 7	... .

Form No. 24.

FOREST DEPARTMENT, BENGAL

Statement of Timber brought to Depôt from the different Forest Divisions during 1872-73

Name of River or division.	Forest	Description of timber.	Pieces	Cubic feet.	Total of each river. Pieces.	Total of each river. Cubic feet.	Remarks.
Cooch Behar..	Siligoree ..	Planks and scantling	453	175			This includes all transfers of timber into scantling, but not timber, &c., removed from one depôt to another, for which see Form No. 27.
	„	Sleepers ...	237	806			
	Allipore	Kala khambas	16	..			
	Julpigoree	Sleepers . ..	43	....			
	„	Kala khambas	19	.			
	Doodoos	Sál log . .	1	....			
	Sookna .	Planks and scantling .	64	.			
	„ .	Sleepers . .	22	74	855	1,055	
Assam	Nambor	Nahor logs . .	70	1,189			
	„	Ajhar „ . .	19	264			
	Gowhatty	Sál „	50	780			
	Makoom .. .	Miscellaneous logs	2	. .			
	(?) ...	Do. „	46	1,380			
	Doyang	Do „	54	1,071	241	4,684	
		Total	...	..	1,096	5,739	

* Of this Rs. 507-5-3 was refunded by Civil Officers.

† Includes Rs. 300 recovery of advance (in part) made by the Secretary of State, London.

Form No. 25.

FOREST DEPARTMENT, BENGAL.

Annual Timber Account for 1871-72.

Particulars.		Pieces.	Total.
I.—Stock in hand at the following depôts at commencement of the year.			
1. At Station Depôts—			
Cooch Behar Division.			
Logs	2,449*		
Sleepers	14,060		
Planks and scantling	891		
Karla khambas	337	17,737	
Assam Division.			
Logs		324	
2. At Forest Depôts—			
Cooch Behar Division.			
Logs	5,515		
Sleepers	11,119		
Planks and scantling	394		
Karla khambas	126	17,154	35,215
II.—Timber received at the Depôts from the Forests.			
1. At Station Depôts—			
Cooch Behar Division.			
Logs	1		
Sleepers	280		
Planks and scantling	453		
Karla khambas	35	769	
Assam Division.			
Logs		241	
2. At Forest Depôts—			
Cooch Behar Division.			
Sleepers	22		
Planks and scantling	64	86	1,096
Total ...		.....	36,311

Particulars.		Pieces.	Total.
I.—Timber removed by purchasers from Depôts.			
Cooch Behar Division.			
Logs	1,130		
Sleepers	6		
Planks and scantling	338		
Karla khambas	251	1,725	
Assam Division.			
Logs		524	2,249
II.—Timber lost and used by the Department.			
Cooch Behar Division.			
Logs		14	
Planks and scantling		727	
Karla khambas		30	771
III.—Stock in hand at close of the year.			
1. At Station Depôts—			
Cooch Behar Division.			
Logs	1,592		
Sleepers	14,397		
Planks and scantling	605		
Karla khambas	91	16,685	
Assam Division.			
Logs		41	
2. At Forest Depôts—			
Cooch Behar Division.			
Logs	5,229		
Sleepers	11,078		
Planks and scantling	232		
Karla khambas	126	16,665	
			33,291
Total ...		.....	36,311

* 62 logs, the property of a contractor, were erroneously included with balance shown at the close of 1871-72.

NOTE.—The 1 log received in the Cooch Behar Division was found in excess at depôt by the Deputy Conservator.
The number of pieces lost and used by the Department is explained as follows:—
Of the 14 logs, 1 was used by the Department for railings, 5 were sawn into scantling, and are shown as such in the receipts in depôts, and 8 were found deficient in depôts.
Of 727 planks and scantling, 481 were used by the Department for railings and furniture, and 246 were found deficient in depôts.
30 kharla khambas were found deficient in depôts.

Total ... 771 Pieces.

Form No. 26.

FOREST DEPARTMENT, BENGAL.

Statement showing the amount of Revenue realized on account of the different classes of Timber sold during the year 1872-73.

Description.	Number of logs and pieces.	Average cubical contents per log.	Amount realized on account of timber sales.	Average amount per log.	Average amount per ton of 50 cubic feet.
Cooch Behar Division.			Rs. A. P.	Rs. A. P.	Rs. A. P.
Sál logs	930	27	19,977 7 0	21 7 9	38 6 8
Other timber	200	43	495 0 0	2 7 7	2 14 0
Sál sleepers	6	3	16 0 0	2 10 8	44 7 1
Planks and scantling	338	.....	491 0 0	1 7 3	.....
Karla khambas	251	.....	366 0 0	1 7 4	.....
Assam Division.					
Sál logs	50	15	742 8 0	14 13 7	49 8 0
Nahar "	70	17	} 699 14 0	1 10 2	5 1 2
Ajhar "	59	16			
Miscellaneous logs	200	16			
Unknown "	46	30	345 0 0	7 8 0	12 12 5
Boats	7	.....	366 4 0	.....	.....
Total	2,256		23,499 1 0		
Deduct—Amount due but not yet realized			.....		
		Balance	23,499 1 0		
Add—Amount realized on account of former years			1,346 2 0		
Total—Shown as revenue on account of timber sales			24,845 3 0		

Form No. 27.

FOREST DEPARTMENT, BENGAL.

Statement showing the description of work done, quantity of timber removed, and amount paid during 1872-73.

Logs			Sleepers			Planks and Scantling			Total
Description of work	No	Amount	Description of work	No	Amount	Description of work	No	Amount	
Cooch Behar Division		Rs A P	*Cooch Behar Division*		Rs A P	*Cooch Behar Division*		Rs A P	
Carting ...	260	2 981 8 0	Removing	260	52 8 0	Sawing .	627	31 10 0	
Floating ..	84	281 0 0	Purchasing	54	86 1 0	Removing	189	30 0 0	
Removing ..	562	656 0 0	Stacking	2,000	38 0 6				
Clearing jungle	570	126 7 8							
Allotting for auction	500	118 8 0							
Advertising		154 10 0							
Paint and oil . .		13 12 0							
Assam Division									
Removing .	195	232 3 11							
Floating .	50	500 0 0							
Dacca Division									
Collecting for auction		1 12 0							
Rent of timber depôt		45 9 7							
Bhaugulpore Division									
Floating .. .	*15	814 0 0							
Total		5 925 7 2	Total		176 9 6	Total		61 10 0	6,163 10 8

* These logs were started from Sarunda, of which 5 reached Jailbunga

(Revised) Form No. 28.

FOREST DEPARTMENT, BENGAL.

Annual account of Revenue realized during 1872-73.

Receipts		Rs A P	Disbursements	Rs A P
Amount of Revenue realized in 1872-73		1 49,851 13 8	Amount disbursed in 1872 73	99,616 10 3
Deduct—			*Deduct—*	
Amount realized on account of previous periods ..		10,260 15 1	Amount disbursed on account of transactions of former periods	3,590 3 3
	Balance	1,39,590 14 7	Balance	96,026 7 0
Add—			*Add—*	
Outstandings on account of the year Rs 5,316 2 0			Amount due for transactions during the year under review, but not yet disbursed	812 9 7
Minus, for bad debts		5,346 2 0		
Value of the year's transactions .		1,44,937 0 7	Real cost of the year's transactions	96,839 0 7

	Rs A P
Value of the year's transactions	1,44 937 0 7
Cost of the year's transactions	96,839 0 7
Balance	48 098 0 0
Deduct—	
Difference between the value of stock at commencement and close of the year	8,112 1 6
Net results of the year	39 985 14 6

Explanation of difference between the value of stock at the commencement and close of the year.

	Sale value of excess stock at close of the year	Sum required to replace deficiency at close of the year	Difference: In favor of the year	Difference: Against the year
	Rs A P	Rs A P	Rs A P	Rs A P
Timber, 1,641 pieces at Rs 5-5-6 each	.....	8,769 1 6		8,769 1 6
" 283 " at " 7-0 0 "		1,981 0 0		1,981 0 0
Other stock	2 638 0 0		2,638 0 0	.....
		Total	2,638 0 0	10,750 1 6
		Deduct—Balance in favor of the year ...		2,638 0 0
		Net balance against the year . ..		8,112 1 6

FOREST DEPARTMENT, BENGAL.

Area of Reserved Forests in 1872-73.

Reserved Forest.		Area in 1871-72.	Added during the year.	Total remaining in 1872-73.
Cooch Behar Division.		Square miles.	Square miles.	Square miles.
Sikhim sub-division	Hill Tracts	75	..	75
	Terai	31	.	31
Assam Division.				
Kamroop district	Matyekar (sâl forest)	... ..	3¼	3¼
	Bordooar (ditto)	. ..	23	23
	Panton (ditto)	.	12	12
Nowgong district	Khalahat (ditto)	.....	7¼	7¼
	Deboka (ditto)	.. .	3¼	3¼
	Mikkir Hill (mixed evergreen forest)	..... .	65	65
Seebsaugor and Naga Hills district	Nambor (mixed evergreen forest)	.	100	100
	Total ...	106	214¼	320¼

FOREST DEPARTMENT, BENGAL.

Area of Unreserved Forests in 1872-73.

This statement cannot be prepared this year for want of data. The estimated areas in the established divisions are given below :—

	Total remaining in 1872-73. Square miles.
Cooch Behar division	765
Assam division	4,565*
Dacca division	4,000(?)
Chittagong division	5,670
Total	15,000

* This area does not include the forests in the Khasi and Jynteah Hills.

FOREST DEPARTMENT, BENGAL.

Area of Plantations for the year 1872-73.

Name of Plantation.	Area in 1871-72.	Total cost.	Area added during 1872-73.	Amount expended during 1872-73.	Total area up to 1872-73.	Total expenditure incurred up to 1872-73.	Remarks.
Cooch Behar Division.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Rungbool	450	9,119 10 6	.. .	75 6 0	450	9,195 0 6	
Bamun Pookree	10	2,373 9 0	30	1,216 6 10	40	3,589 15 10	
Fallacutta	..	..	3	204 4 11	3	204 4 11	
Mohanuddy	. .	..	14	45 8 0	14	45 8 0	
Gulma	...	... .	14	103 8 0	14	103 8 0	
Dhobee Jhara	42	31 8 0		0 8 0	42	32 0 0	
Ramshaie Haut	.....	133 13 6	.....	... .		133 13 6	
Assam Division.							
In Luckimpore Makoom	2	353 0 0	2	183 12 6	4	536 12 6	
„ Kamroop Koolsee			8	411 13 6	8	411 13 6	
„ Cossyah Hills . Shillong tree nursery	... .	.	5	906 5 1	5	906 5 1	
Chittagong Division.							
Seetapahar ...	.....	231 0 0	8	179 13 9	8	410 13 9	
Kassalong ..	....	. ..		4 10 0	..	4 10 0	
Pahartullee .	.....	.... .	5	324 14 6	5	324 14 6	
Holingamara	.	..... .	.. ..	300 0 0		300 0 0	100 acres prepared only
Total .	504	12,242 9 0	89	3,956 15 1	693	16,199 8 1	

FOREST DEPARTMENT, BENGAL.

Area of Forest Tracts protected from fire up to 1872-73.

Cooch Behar Division.

		Acres.
Mooraghat ...	Additional area protected in 1872-73	420
	Total area protected up to 1872-73	420

REMARKS.—Expenditure Rs. 30-2-0 charged to A.—VIII as the line was cut by officers while surveying the tract.

FOREST DEPARTMENT, BENGAL.

Prosecutions for breaches of Forest Rules during 1872-73.

		Cooch Behar.	Dacca.	Total.
Number of prosecutions	Number of cases	5	3	8
	„ persons	7	3	10
Convictions obtained or still pending ..	Number of cases, convictions	2	..	2
	„ „ pending	2		2
	Number of persons convicted	2		2
	„ „ under trial	4		4

A. L. HOME, *Deputy Conservator,*
In charge, Office of Forest Accounts, Bengal.

APPENDIX A

List of the principal trees growing in Assam, exclusively of the Khasi and Jynteah Hills, prepared by G. MANN, ESQ., *Assistant Conservator of Forests, Assam Division*

Current number	Systematic name	Native name.	Size of tree when full grown in feet	REMARKS
			Feet.	
1	Shorea robusta ..	Sâl ..	6-15	Growing collectively, forming forests of its own Seasoned timber does not float. Quality of timber superior, used for canoes and in building.
2	Dalbergia sissoo	Sissoo .	6-12	Growing collectively chiefly on newly formed land on river banks. Seasoned timber does not float Quality of timber superior, used for furniture and in building.
3	Artocarpus chaplasha	Sam	6-15	Growing in mixed plain forests and mixed lower hill forests. Quality of timber superior, chiefly used for canoes, floats, also for furniture and in building.
4	Artocarpus integrifolia	Kuthal ...	6-8	Tree not indigenous, but found in many of the mixed plain forests, where they were probably planted at first by villagers before the Burmese invasion; timber superior, furniture, posts, and buildings; timber floats.
5	Cedrela toona	Hendury Poma	6-15	Grows scattered in mixed plain and lower hill forests; timber floats, superior, used for furniture, canoes, and building. Flowers in March, seed ripens in June and July.
6	Michelia champaca	Tita sappa .	6-10	Grows scattered in mixed plain and lower hill forests; floats, used for canoes, furniture, building; is superior
7	Lagerstrœmia reginæ	Ajhar	6-10	Growing chiefly at the margin of mixed plain forests, timber superior, canoes and building; floats
8	Mesua ferrea ...	Nahor ..	5-6	Growing in mixed plain and lower hill forests; timber good, chiefly used for house posts, does not float Flowers in April, seed ripens in August.
9	Camphora glandulifera	Gunserai	6-10	Growing in mixed plain and lower hill forests, chiefly used for canoes and building; timber very durable, floats
10	Engenia mangifolia	Bun-jamoo	6-10	Grows very scattered in mixed plain forests, used for building; timber superior, but rare.
11	Engenia jambolana	Bur-jamoo ...	6-10	Ditto ditto
12	Bishofia Javanica	Uriam	6-10	Growing in mixed plain forests, chiefly in the neighbourhood of rivers; timber good and very useful for post for bridges; floats
13	Gmelina arborea ...	Gomaree	6-8	Growing chiefly in desideous forests; timber good, used for canoes, planks, drums, and building generally; floats.
14	Marlea sp	Bola	6-0	Growing very scattered in mixed plain forests; timber floats and is superior; chiefly used for boat, oars, and furniture.
15	Albizzia odoratissima	Koroi ...	6-8	Growing very scattered chiefly in desideous and savannah forests; timber floats; of good quality for building
16	Cassia fistula ...	Sonaroo ...	4-6	Growing in mixed plain forests and lower hill forests; timber very durable; chiefly used for house posts, does not float.

APPENDIX A.—(*Continued.*)

Current number.	Systematic name.	Native name	Size of tree when full grown in feet.	REMARKS.
			Feet.	
17	Acacia catechu	Khair	4-5	Growing collectively, chiefly on newly formed land on river banks; seasoned timber does not float; chiefly used for house-posts and charcoal burning; timber good.
18	Shorea sp.	Makai	6-10	Growing in lower hill forests; timber floats; is of middling quality; chiefly used for canoes and planks.
19	Michelia oblonga	Phool sappa ...	6-10	Growing in mixed plain and lower hill forests; timber floats; is middling; used for canoes, rough furniture.
20	Echinocarpus titiaceus ...	Phool hingoree ...	6-8	Growing in mixed plain forests and lower hill forests; timber floats, and is middling; used for planks and beams, where not exposed to changes of weather.
21	Castanopsis tribuloides ...	Bur-hingoree ...	6-8	Growing in mixed plain forests and lower hill forests; timber floats, and is middling; used for planks and beams, where not exposed to changes of weather.
22	Terminalia citrina ...	Hilika	6-8	Growing in mixed plain forests and lower hill forests, scattered; timber floats; is of middling quality; used for planks and ordinary building purposes.
23	Terminalia tomentosa ...	Amaree	6-10	Growing in mixed plain and lower hill forests; timber floats; chiefly used for canoes and ordinary building purposes; timber of middling quality.
24	Phima (Gordonia) mollis	Makreeah	6-12	Growing in sâl and other desideous forests, also in lower hill forests; used for canoes, planks, and ordinary building purposes; is of middling quality; floats.
25	Garuga pinnata	Gendelly poma ..	6-12	Growing in mixed plain and lower hill forests; used for canoes, planks and ordinary building purposes; timber middling; floats.
26	Bignonia chelonoides ...	Parellee	6-8	Growing in mixed plain and lower hill forests; floats; used chiefly for planks and ordinary building purposes; is of middling quality.
27	Nauclea cadamba ...	Roghoo ...	6-8	Growing chiefly at the margin of mixed plain and lower hill forests; chiefly used for planks, for tea-boxes, and ordinary building purposes; is of middling quality, and floats.
28	Nauclea cordifolia ...		6-8	
29	Vitex pubescens	Gohorah ...	4-6	Growing in Upper Assam in the mixed plain forests; timber of good quality but short; chiefly used for house-posts; floats.
30	Terminalia bicolorata ...	Hulluch	6-10	Growing in mixed plain forests, chiefly on river banks; timber floats, and is of middling quality; used for canoes and ordinary building purposes.
31	Ehretia serrata	Boosl	4-6	Growing scattered in the mixed plain forests; timber of middling quality; floats; used for oars, planks, and ordinary building purposes.
32	Garcinia pedunculata ...	Borthekra	6	Growing in the mixed plain forests; floats; is of middling quality; used only for planks, beams, and ordinary building purposes.
33	Mangifera sylvatica ...	Bun-am	6-12	Growing in mixed plain and lower hill forests; used for rough furniture, planks, and ordinary domestic purposes; quality middling; floats.

APPENDIX A.—(*Continued.*)

Current number.	Systematic name.	Native name.	Size of tree when full grown in feet.	REMARKS.
			Feet.	
34	Mangifera Indica	Ghoree-am ...	6-10	Tree is met in many of the mixed plain forests, where it has in all probability been planted before the Burmese invasion; timber like the above.
35	Bombax Malabaricum ..	Simool	6-15	Growing chiefly on the chur lands and the margins of the mixed plain forests; wood inferior, but largely used for tea-boxes; floats; also used for canoes.
36	Duabunga soneratoides ...	Kochan	6-10	Growing at the margin of lower hill forests; timber inferior; floats; sometimes used for canoes, otherwise only for ordinary domestic purposes.
37	Depterocarpus Bondii .	Hollong	6-15	Growing in lower hill forests; timber inferior, soft; floats; very rarely used for canoes; does for planks and ordinary domestic purposes.
38	Altingia excelsa	Jooteolee	6-10	Growing collectively on the margin of, or adjoining mixed plain forests; wood inferior, but used for ordinary building and domestic purposes.
39	Alstonia sp.	Sootcanah ...	6-8	Growing in the mixed plain forests; wood inferior, but much used for tea-boxes; floats.
40	Chickrassia tabularis	Boga-poma ...	6-8	The same as the above.
41	Emblica officinalis ...	Amlookee	3	Growing in desideous plain and lower mixed forests; wood inferior; used sometimes for house-posts; floats.
42	Lagerstrœmia parviflora ..	Sidah	4-5	Growing in desideous plains and lower hill forests; chiefly used for firewood; floats.
43	Dillenia speciosa	Otengah	4-6	Growing in the mixed plain forests; fruit eaten; wood inferior, only used for firewood and burning of charcoal.
44	Dillenia pilosa	?	4	Growing in the mixed plain forests; wood inferior; used for firewood only; floats.
45	Dillenia Indica	?	4-6	Ditto ditto
46	Dillenia pentagyna ...	?	4-6	Ditto ditto
47	Salia tetrasperma . ..	Bhet	3-4	Growing near beels and on low land; wood inferior, but sometimes used for posts and planks; floats.
48	Toricellia tiliaefolia ...	Belloo	6-20	Growing in the mixed lower hill forests, and attains a great size; wood inferior, not much used, except for firewood.
49	Vitex altissima	Ahay	3-4	Growing in the mixed plain forests; wood good, but small; used for posts and planks occasionally; floats.
50	Vitex peduncularis ...	Ossi	3-4	Growing in the lower hill forests; wood inferior; floats.
51	Bursera serrata	Meertenga .	4-5	Growing in the mixed plain forests; wood inferior, but sometimes used for planks or posts; floats.
52	Amoora rohituka	Amora	3	Growing in the mixed forests of the plain and lower hills; wood inferior but sometimes used for ordinary domestic purposes; floats.
53	Michelia sp.	Gowree champa ...	4-6	Growing in the mixed lower hill forests; wood inferior, but sometimes used for ordinary domestic purposes; floats

APPENDIX A.—(*Continued.*)

Current number.	Systematic name.	Native name.	Size of tree when full grown in feet.	REMARKS.
			Feet.	
54	Magnolia sphenocarpa ..	Burramtooree ..	3-4	Growing in the mixed plain and lower hill forests ; wood middling, but small ; sometimes used for posts ; floats
55	Talauma Rabaniana (?) ..	Sappa	3-5	Growing in the mixed plain forests and lower hill forests ; wood inferior, but sometimes used for planks and rough furniture.
56	Briedelia sp.		3-4	Growing in the mixed plain and lower hill forests ; wood inferior.
57	Carallia integerima ...	Koojee tekrah ...	3-4	Ditto ditto; fruits eaten by the natives.
58	Holigarna racemosa	Amdalee	4-6	Growing in the mixed plain forests ; wood inferior, but occasionally used for canoes, planks ; floats.
59	Engelhardtia Roxburghii .	Roonigass	3-5	Growing in the lower hill forests ; wood inferior, but used for ordinary domestic purposes.
60	Quercus spicata	Sakoo hingoree ...	3-4	Growing sparingly in the mixed lower hill forests ; wood rough and small ; used sometimes for house-posts.
61	Celtis tetrauthera ...	Hooktapottia ...	3-4	Growing in the mixed plain and lower hill forests ; wood inferior, but sometimes used for canoes and planks.
62	Bauhinia Malabarica .	Kattra	3-4	Growing in the plains and lower hill forests ; wood inferior ; occasionally used for house-posts, but chiefly for firewood.
63	Bauhinia tomentosa ..			
64	Holarrhena antidysenterica	Doodeory	3-4	Growing in the plains and lower hill forests ; wood hard, but otherwise inferior ; used sometimes for post and other domestic purposes ; floats.
65	Aesculus pundnana ..	Ekoohea	3-4	Growing in mixed plain forests, chiefly in the neighbourhood of rivers ; wood inferior, seldom used ; floats.
66	Barringtonia racemosa ...	Kumringah ...	4-5	Growing in the mixed plain forests ; wood inferior ; used for ordinary domestic purposes ; floats.
67	Actinodaphne obovata ...	Cherritenga ..	3-4	Growing in the mixed plain forests ; wood inferior, seldom used ; floats.
68	Actinodaphne augustifolia	Sanikoh	4-5	Growing in the mixed plain forests ; wood inferior, seldom used ; floats.
69	Rottlera tinctoria ..	Gungai	4-5	Ditto ditto.
70	Grewia elastica	?	3-4	Growing in mixed plain forests ; wood small but durable ; used for posts and planks and other domestic purposes ; floats.
71	Careya arborea	Kumbi	2-3	Growing in desideous plain forests and sâl forests ; wood useless, rarely cut ; floats
72	Semecarpus anacardium .	Bhela	2-3	Growing in the mixed plain forests ; wood next to useless ; floats.
73	Mimusops elengi .	? .	2-3	Growing in the mixed plain and lower hill forests ; wood not used, except for firewood.
74	Flacourtia cataphrasta ...	?	2-3	Growing in the mixed plain and lower hill forests ; wood not used ; fruit eaten.

APPENDIX A.—(*Concluded.*)

Current number.	Systematic name.	Native name.	Size of tree when full grown in feet.	REMARKS.
			Feet.	
75	Castanopsis argentia ...	Hingori	3-4	Growing in the lower hill forests; wood sometimes used for ordinary domestic purposes; floats.
76	Odina wodier ..	?	4-6	Growing in the lower hill forests, is scarce; wood of good quality; used for posts and other domestic purposes.
77	Garcinia lanceæfolia ..	?	2-3	Growing in the lower hill forests; wood not used.
78	Terminalia bellerica ...	Hulluck	4-6	Growing in the mixed plain forests, chiefly on river banks; wood used for ordinary domestic purposes.
79	Tetranthera laurifolia ...	?	3-4	Growing in the mixed plain forests; wood not used.
80	Callicarpa arborea ...	?	2-3	Growing in the lower hill forests; wood not used.
81	Ficus elastica .	Attah-bur ...	30-40	Caoutchouc trees.
82	Ficus laccifera ...	Bur	20-30	
83	Ficus Rumphii (cordifolia)	Pakri	10-20	The lac insect is reared on these.
84	Ficus camosa .	Jooree pakri ..	10-20	
85	Ficus nitida ...	?	10-20	Useful for charcoal for tea manufacture.
86	Ficus infectoria ...	?	10-20	
87	Ficus genisulata ..	?	6-10	Ditto ditto.
88	Ficus radicans ...	?	6-10	
89	Ficus hispida .	?	5-6	
90	Ficus sp. ..	?	6-10	
91	Sterculia villosa . .	Oodal	4-6	The bark is used for rope manufacture.
92	Artocarpus lacoocha ...	Dowa	6-10	The bark is chewed by the natives.
93	Excoecaria baccata .	Adamsali .	4-6	
94	Machilus sp. ...	Moezankori ..	2-3	Silkworm plants.
95	Machilus odoratissima .	Soom	4-6	
96	Tetranthera monopetala..	Soonloo	3-4	Ditto ditto.
97	Cylicodaphne nitida ..	Kotoloah	3-4	
98	Symplocus grandiflora ..	Boomrotee ...	3-4	
99	Cinnamonum obtusifolium	Patee chunda .	4-6	
100	Phoebe glaucescens ..	?	2-3	
101	Tetranthera glauca ...	?	2-3	
102	Morus Indica	Noance	1-2	

REMARK.—This list does not include the trees met with in the Khasi and Jynteah Hills.

G. MANN,
Assistant Conservator of Forests, Assam Division.

APPENDIX B.

List of trees in the Palamow District, Chota Nagpore Division, observed by Dr. W. Schlich, *Conservator of Forests, Bengal, while on a rapid tour through Palamow*, 1873.

No.	Name of family.	Systematic name of tree.	Local name of tree.	Remarks.
1	Anonaceæ	Saccopetalum tomentosum ...	Kirna	Large tree; wood said to be soft and useless.
2	Capparideæ	Cratæva religiosa .	Barun	Tree of moderate size; planted only.
3	Bixineæ	Cochlospermum gossypium ..	Galgal	Tree of moderate size; wood soft and useless.
4	Malvaceæ	Bombax Malabaricum ...	Simur	Cotton tree.
5	Dipterocarpeæ ..	Shorea robusta	Sakwa [sal] ...	Used as timber, for charcoal and firewood; yields a resin called "dhuna."
6	Rhamnaceæ	Zizyphus rugosa	Bithor	A small tree apparently; fruit said to be eaten by the poor only in years of scarcity.
7	Ditto	Zizyphus jujuba	Ber	Only seen as a shrub; fruit edible.
8	Ditto	Zizyphus scylopyra	Kakor	A small tree apparently.
9	Sapindaceæ	Schleichera trijuga	Kusum	Large tree; wood highly prized; exported to Gya, Patna, and Shahabad districts for rice-pounders, oil-presses, sugarcane-crushers, &c.
10	Meliaceæ	Melia azadirachta	Nim	Planted only.
11	Ditto	Melia azedarach	Agas	Ditto
12	Ditto	Cedrela toona	Tuni	Probably only planted.
13	Ditto	Soymida febrifuga	Garohan ...	Tree; wood used, but not extensively; bark febrifugal.
14	Aurantiaceæ ..	Aegle marmelos	Bel	Wood-apple tree; wood much prized and used.
15	Therebinthaceæ ...	Boswellia thurifera	Salai	Tree; wood very soft and light; it is used in floating heavy timber; yields a gum.
16	Ditto .. .	Semecarpus anacardium ..	Belawa	Marking nut tree; moderate size; wood said to be useless.
17	Ditto	Odina wodier	Ginyan	Tree; wood prized and used.
18	Ditto	Mangifera Indica	Am	Planted only.
19	Ditto	Buchanania latifolia	Piar	Tree of moderate size; wood used for domestic purposes; fruit used by confectioners.
20	Leguminosæ ...	Albizzia, (lebbek, *or* procera)	Garso	Large tree.
21	Ditto	Acacia catechu	Khair	Tree of moderate size; wood used for the manufacture of cutch.
22	Ditto	Acacia ferruginea	Khaur	Tree of moderate size; wood said to be good.
23	Ditto	Bauhinia retusa	Tewar	Trees of moderate size.
24	Ditto	Bauhinia variegata	Kasmar ...	
25	Ditto	Bauhinia tomentosa	Kadmahuli ...	
26	Ditto	Bauhinia sp.	Gadmar ...	
27	Ditto	Cassia fistula	Persar	Tree; wood prized and used.
28	Ditto	Tamarindus Indica	Imli	Preserved for the fruit's sake; timber much prized.
29	Ditto	Pongamia glabra	Karanji	Tree; wood said to be good, but not extensively used; fruit yields an oil.
30	Ditto	Butea frondosa	Paras	The lac tree.
31	Ditto	Butea sp.	Sanar	
32	Myrtaceæ	Eugenia jambolana	Jamun	Tree; wood not much used.
33	Ditto	Eugenia caryophyllitolia ...	Jainti	Large tree; wood prized and used.
34	Ditto	Careya arborea	Kumbi	Tree; wood little used.
35	Lythrariæ	Lagerstrœmia parviflora ..	Sida	Tree; wood much prized, and extensively used.
36	Combretaceæ ...	Terminalia tomentosa ...	Asau	Large tree; wood hard, highly prized, and extensively used. Tusser silk tree.
37	Ditto	Terminalia glabra	Kahua	A very large tree; wood hard and very much prized; extensively used.
38	Ditto	Terminalia bellerica	Bahera	Tree; wood light; said to be good, and used in cart-making.
39	Ditto	Anogeissus latifolia	Thanta	Large tree; wood highly prized; hard and durable; extensively used.
40	Samydaceæ	Cascaria tomentosa	Beri	Small tree; wood not used.
41	Cornaceæ	Alangium decapetalum ...	Thaila	Small tree; wood not used.
42	Rubiaceæ	Ixora parviflora ...	Kota	Small tree; wood hard and good.
43	Ditto	Hymenodictyon thyrsiflorum	Purgur	Tree; wood said to be soft, not used.
44	Ditto	Nauclea cordifolia	Karam	Large tree; wood light, but much prized and extensively used.
45	Ditto	Gordenia latifolia	Panpara.. ...	Tree; wood used, but not extensively.
46	Ebenaceæ	Deospyrus tomentosa	Kien	Large tree; ebony; wood hard and black, and much prized
47	Sapotaceæ	Bassia latifolia	Mahua	This tree is preserved on account of its flowers, from which arrack is distilled, and which are eaten; wood used for domestic purposes.
48	Boraginaceæ	Ehretia lævis	Panapoti ...	Tree of moderate size; wood not used.
49	Verbenaceæ	Teotona grandis	Sagun	Only a small number of young trees planted at Daltongunge.
50	Ditto	Gmelina arborea	Gumhar ...	Large tree; wood light; extensively used.
51	Ulmaceæ	Ulmus integrifolia	Chilbil	Very large tree; wood prized and used.
52	Euphorbiaceæ ...	Emblica officinalis	Aula	A small tree, or of middling size; wood not used.
53	Urticaceæ	Ficus Bengalensis	Bar	
54	Ditto	Ficus religiosa	Pipur	
55	Ditto	Ficus Rumphii (cordifolia) ...	Pakkar	
56	Ditto	Ficus lencocarpa	Guler Dumar .	
57	Ditto	Ficus parasitica	Kekar	
58	Ditto	Ficus tomentosa	Barunkaya ...	
59	Ditto	Artocarpus integrifolia ...	Kadahar ...	Jack-fruit tree; planted only.
60	.....	... ...	Guritch	Wood prized and used.
61	.....	... ...	Karhar	Tree with thorny stem, and fruit of the shape of a large apple; wood not used.

APPENDIX B.—*(Continued.)*

No.	Name of family.	Systematic name of tree.	Local name of tree.	REMARKS.
62	.....	... ...	Tiloi	Wood said to be good.
63	.....	... ...	Kagahi	Small tree with soft wood.
64	.....	... ...	Kiaunji	Wood said to be good, but this is doubtful; yields a gum.
65	.....	... ...	Dawar	Wood said to be useless.
66	.....	... ...	Then	Wood much prized and extensively used.
67	.....	... .	Gari	Wood soft; not used.
68	.....	... ...	Sauraj	Nothing known about these trees.
69	.....	... .	Karaunda ...	
70	.....	.. ..	Jumar	
71	Gramineæ	Bambusa stricta	Bans	This bamboo does not attain a large size in Palamow. It is extensively used, and large quantities are exported to Gya, Shahabad, and Patna districts.

CALCUTTA,
The 18th April 1873.

W. SCHLICH,
Conservator of Forests, Bengal.

APPENDIX C.

List of trees and shrubs met with in the Sunderbuns.

Current number.	Systematic name.	Native name.	Lengths in which generally cut.	Uses.
1	Heritiera littoralis...	Soondree ...	8′ to 16′, occasionally 35′.	Beams, buggy shafts, planks [flooring and boat building], paddles, posts and furniture. Occasionally for masts and rudders. Hard, durable wood.
2	Excœcaria Agallocha	Gengwa ..	10′ to 15′ .	Posts for native houses, native drums, toys, &c. Soft light wood, firewood.
3	Avicennia tomentosa	Bam ..	8′ to 10′ ...	Sluices, &c., a hard brittle wood, firewood.
4	Sonneratia apetala	Keowra ..	6′ to 10′ occasionally to 20′.	Planks for in-door use, decays quickly when exposed. Wood soft.
5	Aegiceras corniculata	Kolsha ..	5′ to 8′ ..	Used for firewood and occasionally in native hut building.
6	Carapa obovata	Poshoor .	12′ to 24′ .	Posts for building purposes, small girth. Hard wood, occasionally small planks.
7	Cynometra bijuga ..	Shingr ...	3′ to 5′ ...	Firewood. A hard crooked growing timber.
8	Rhizophora mucronata.	Bhara .	6′ to 8′ ...	Occasionally used in native hut building. Firewood.
9	Lumnitzera racemosa	Kripa ..	8′ to 15′ ...	Occasionally used in native hut building. Firewood
10	Amoora cucullata ...	Amoor ..	10′ to 15′ ...	Posts for native huts. A hard wood, firewood.
11	Bruguiera gymnorhiza.	Kakra	6′ to 12′ ..	" " " native furniture, &c.
12	Thespesia populnea .	Parash ...	8′ to 10′ ...	In native hut building, occasionally planks for in-door use.
13	Dalbergia monosperma.	Pancheoli	4′ to 6′ ..	Firewood.
14	Afzelia bijuga ..	Shoondal	8′ to 12′, occasionally to 18′.	Planks for in-door use; decays quickly. Firewood.
15	Pongamia glabra ...	Dalkaramcha ...	6′ to 12′ .	Firewood. Produces an oil used for medicine and also for burning.
16	Hibiscus tiliaceus ..	Bola ...	4′ to 8′ ...	Firewood. Soft, inner bark used by wood cutters for dragging timber and fixing firewood on boats, when twisted into rough ropes.
17	Salacia prinoides ..	Dimal ..	4′ to 6′ ...	Small straggling wood. Firewood, occasionally inner wood used for making beads for charms
18	Acanthus ilicifolius,	Kentki ..	2′ to 4′ ...	Firewood only.
19	Cerbera Odallam ...	Daboor	2′ to 4′ ..	Ditto.
20	Tamarix Gallicavar: Indica	Jhaoo .	2′ to 4′ .	Ditto.
21	Clerodendron inerme	Bhoonjam	2′ to 4′ ...	Ditto. Leaves used medicinally by natives.
22	Ceriops Roxburghiana.	Goran	6′ to 12′ ...	Extensively used in Calcutta for firewood.
23	Phœnix paludosa .	Golpatta ...	.....	Leaves used extensively in Calcutta for thatching.

A. L. HOME,

Calcutta, 15th May 1873.

Deputy Conservator of Forests, Bengal.

APPENDIX D.

General description of the Mahanuddy Terai Forest Range. By J. SYKES GAMBLE, ESQ., B.A., *Assistant Conservator of Forests, Sikkim Sub-Division.*

1. *Area.*—The area of the Mahanuddy Terai range is as follows:—

Number	Name of forest	Sal forest	Khair and Sissu forest.	Mixed plain forest	Savannah forest
		Acres			
1	The Teesta Savannah forest				505
2	„ Teesta Sivoke Sissu forest		322		
3	„ Shummur Danga Sal forest	522			
4	„ Singaru Pahar forest			270	
5	„ Sivoke Sal forest	1,554			
6	„ Shilibhita Savannah forest				245
7	„ Goolma-Goroomara Sal forest	195			
8	„ Goolma-Choklong Savannah forest				420
9	„ Champasaree Khar Sal forest	1,671			
10	„ Champasaree Savannah forest				463
11	„ Mahanuddy Khair forest		573		
12	„ Moorgong Savannah forest				901
13	„ Moorgong Sal forest	763			
	Total	4,705	895	270	2,534
	Grand Total	8,404 acres			

2. *Boundaries and the properties with which they march.*—The range is bounded on the north by the Darjeeling hill territory; on the west by the Ganges-Darjeeling cart road; on the east by the Teesta river; and on the south by tea estates, other cultivated land, and the Bykuntpore sal forest, the property of the Rajah of Julpigoree.

3. *Topographical description.*—The ground is tolerably level, having a slight slope towards the south, and rising in places to elevated (30—400 feet) plateaux through which the rivers probably have cut their way, and left the steep ridges, which run almost parallel to their banks.

The chief rivers traversing the tract are the following:— 1*st*, the Teesta, on the east boundary, always running, and navigable to Sivoke for very light boats the whole year round. In April it rises very quickly owing to the melting of the snow on the mountains of Sikkim and Thibet, and during the rainy season a very large volume of water is brought down; it is then well adapted for floating timber. 2*nd*, the Sivoke river, which joins the Teesta at Sivoke, runs the whole year round, but during the rainy season only has sufficient water for floating 3*rd*, the Gulma river, which receives two principal tributaries—the Goroomara and Choklong rivers—is dry for a great part of the year. 4*th*, the Mahanuddy river, a large river, crossing the tract from north to south. In the dry and hot seasons the water disappears soon after leaving the hills, and re-appears after leaving the boundary of the tract about five miles down. Floating can only be carried on in the rains. 5*th*, the Punchevnaie river, which shows the same peculiarities as the Mahanuddy.

The chief roads are the following:—1*st*, road from Sivoke to Silligoree, 12 miles. 2*nd*, road from Sivoke to Mahanuddy and on to Sookeea, about 15 miles; this is commonly called the "timber road." 3*rd*, road from Choklong to Champasaree, another timber road. 4*th*, the road from Mahanuddy to Silligoree joining the cart road near the bridge over the Punchevnaie river, about 10 miles. 5*th*, the Ganges-Darjeeling cart road on the west boundary.

4. *Soil (geological description)—climate.*—The soil is almost invariably sandy, mixed in some places with clay, and everywhere with a large amount of "humus." It is evidently chiefly formed by the decomposition of the gneiss and mica schist rocks of the Darjeeling hills. The climate is very damp during the greater part of the year, the rains beginning gradually from the end of March, falling at intervals during the hot weather, and regularly setting in by the beginning of June.

5. *Description of the forest as to species, age, and condition.*—No 1.—*The Teesta Savannah forest* consists of a low-lying tract of marshy land, covered for the most part with long grass and with common trees, and with a dense growth of swampy plants, such as wild plantains, gingers, &c., towards the Jhenaikhoorie Nuddy. It is bounded on the east by the Teesta river, and on the west by the Jhenaikhoorie Nuddy, which separates it from the Shummur Danga sâl forest and the Bykuntpore private forest. Very few trees of any value are to be found, with the exception of a few sissu and siriss towards the Teesta, and perhaps a few sal or saj trees on the north-west boundary.

No. 2.—*The Teesta and Sivoke sissu forest* occupies the low ground on the banks of the Sivoke and Teesta rivers. It is intersected by numerous channels, which are liable to change every year. It is of irregular shape, being bounded on the north by the Sivoke river, on the east by the Teesta river, and on the south-west by the Singaree Pahar mixed forest and the Shummur Danga sal forest. The soil is chiefly gravel and sand, evidently the deposits of the rivers which inundate it more or less every year. The sissu for the most part is young, and these young forests are very good about Sivoke, on Sivoke Island, and the banks of the Teesta. The few large trees are chiefly on the banks of the Sivoke Jhora in the drier situations. Khair is not very abundant, it being chiefly found in one or two patches on the banks of the Teesta. The other most prominent trees are siriss and semul, the first being good and of large size about Sivoke. Where the sissu is thickly grown, there is not much long grass or even small shrub for undergrowth; but in the less dense parts there is an enormous quantity of very tall grass and a thick growth of wild plantains, gingers, and a species of "desmodium." There is not much sale of timber, the chief sales being for cart wheels and axles for the carts on the road at Silligoree. Timber could be easily exported by river from this forest down to Julpigoree; and if the sissu be allowed to grow, it is possible that in some years' time it may be made very profitable.

No. 3.—*The Shummur Danga sal forest* consists of a square tract containing belts of sal, saj, and grass jungle. It is bounded on the north by the Teesta and Sivoke sissu forest; on the east by the same, and the Teesta savannah forest; on the west by the Singaree Pahar mixed plain forest; and on the south by Bykuntpore forest. Towards the Teesta the ground is low, but it gradually rises to the west. In the southern part is the site of an old Mechia village. Such sites are always easily recognized, from the trees having been cut over about three feet from the ground and sending up a number of shoots from thence. The sal in places is very good, some of large size; but the creepers seem never to have been cut, and spoil the trees very much indeed. There is a belt of very fine old saj trees, also much troubled with creepers; but of very good growth, and almost, if not quite, mature. Of other trees, jamun grows to a large size and very straight, as also do seada and oodal; the latter particularly useful for the good ropes that are made of its bark, and for the copious gum, which exudes on its being cut. In the strips of grass jungles which alternate with those of sal and saj, the chief and almost only tree is palass. It is not however used in this country either for timber or for the collection of lac. The timber from this forest can easily be worked out either by the road which leads from Shummur Danga village to Silligoree, or, which is better, by floating down the Teesta river. This is, as far as I know, almost the only tract in the Terai which escaped fire, at any rate till long after March; this may be ascribed to its being very much out of the way of cattle grazers.

No 4.—*Singaree Pahar mixed plain forest* is a long strip of forest bounded on the south and west by the steep ridge which forms the boundary of the Sivoke sal forest. It lies on this slope, and in the dense swampy cane-brake at its foot. It is exceedingly damp and marshy at all seasons, and is so filled with a dense growth of canes, creepers of all sorts, and epiphytic plants, such as orchids and ferns, that it is very difficult to penetrate. Both on the side of the Sivoke and Teesta rivers it is traversed by a small river towards the Teesta—the Remahee Jhora. Among the trees which are found in it, the principal is toon, which grows well, though not in very great numbers, on the Sivoke slopes of the Singaree Pahar. There, too, the true India-rubber (*Ficus elastica*) is found; and the *Ficus obtusifolia*, an indifferent species, is common towards the Teesta. In some parts, especially to the south, katoos is common, and sal and saj are not uncommon on the slopes. This forest might be rendered very useful in future for the planting of both toon and India-rubber, and for the extraction of canes The timber of the first, or the rubber from the second could easily be brought out by the road to Silligoree.

No. 5.—*Sivoke sâl Forest.*—This forest, by far the most important one in the tract, occupies a plateau in the angle formed by the ridges parallel to the Teesta and Sivoke rivers, elevated about 100 to 400 feet (on the boundary line the height measured was 345 feet). It is bounded on the north and east by this ridge; on the west by the Goroomara hills and river, a ridge, and the Jeeal Jhora; and on the south by the Bykuntpore forest. The

land is nearly level throughout the forest: it is crossed in a few places by small streams, such as the Singhee Nuddy and Jeeal Jhora; but these are dry except in the rains. The soil is dark sandy, with a small admixture of clay in parts; the subsoil is almost pure sand, as is easily seen by the many sections obtainable on the slope of the Singaree Pahar ridge. On the southern boundary there is very much long grass with few trees, and these bearing unmistakable evidences of the annual recurrence of the jungle fires. An attempt was made this year to keep them out, but without success. In this part are many old sal trees of large size, but perfectly rotten inside, which accounts for their not having been cut by Mr. Dear, who some years ago was given the right of bringing out sal from the Government forest, and who cut every tree of marketable value. The rest of the forest, however, with the exception of a small portion at the foot of the Goroomara hills, also covered with long grass, is very good, the cover thick, the tall grass in very small quantity, and the growth of the trees admirable. The undergrowth consists chiefly of creepers, seedlings of forest trees, and quantities of the *lea robusta*, a soft-stemmed plant with large leaves, which, however, dies down at the end of the rains. The creepers in some parts, especially the berla or *Bauhinia Vahlii*, and debrelara (*Ertada sp.* or *Butea sp.*), do a great deal of damage, and should be cut: of other trees a few good chalownee are occasionally to be found; also jamun, seeda, oodal, and gambari, all of them useful trees, though little used in this country. Timber can be taken out of this forest either by the cart road to Silligoree, or by dragging to the Teesta river and thence floating to Julpigoree Along the road from Sivoke to Silligoree are 100 trees marked with tin tickets; these have been measured this year, and these measurements, in comparison with those to be taken in the future, will give data for determining the rate of growth. They are of all sizes, from the sapling 10 feet high to the 4 or 5-cubit girth tree.

No. 6.—*Shilibhita savannah forest*, a tract of long grass, bounded on the north by the Goroomara hills, on the east by the Sivoke sal forest, on the south by the Jeeal Jhora, and on the west by the Goroomara river. It is crossed by the road from Sivoke to Sookna, and a path leading to Goroomara village. In it is a piece of land called Shilibita jote, containing 27 acres, belonging to a native who for some years cultivated rice upon it. The boundaries of this jote are not easily determined; they have been laid down on the map from their position in the revenue survey maps. In the angle formed by the Jeeal Jhora and the Goroomara river is a small piece of land which was planted with India-rubber cuttings; these have, however, all failed. The trees are very few, and consist merely of a few sal saplings of pretty good growth scattered over the forest in the long grass, chiefly towards the north.

No. 7.—*The Goolma Goroomara sal forest* occupies a small plateau between the Goolma and Goroomara rivers, and the low ground round it. It is bounded on the north by the lower hills, and on the south by the Bykuntpore forest. The soil is good on the plateau, but bad in the low ground, and is chiefly composed of sand much mixed with humus.

The sal on the plateau is good, resembling that in the Sivoke sal forest; but the lower parts towards the Goroomara and Goolma rivers have more the character of Savannah.

No. 8.—*The Goolma Choklong savannah forest* occupies the land between the lower hills and the Goolma river, and is bounded on the west by the Choklong river. Valuation surveys were made in it, but with such poor result that it has been set down as savannah. It is crossed by several small streams, especially by the Baboonee Jhora, the banks of which are covered with the damp-loving vegetation of the mixed forests. In this forest is the Baboonee Bhita jote, consisting of 30 acres of land with a boundary entirely undefined except on the revenue survey maps. It belongs to a man named Sinchoo of Silligoree, but is not cultivated. In some parts of this forest are small patches of good young sal, but the majority of the forest is covered by very tall grass, and a few trees of unreserved kinds, as semul and parari.

No. 9.—*Champasaree Jhar sal forest* is a large tract of forest land bounded on the north by the Choongloong and Choklong Jhoras at the foot of the lower hills; on the east by the Goolma and Choklong rivers; on the south by Mechia cultivation in Champasaree savannah forest; and on the west by the Mahanuddy river. The soil is a sandy gravel towards the north, and a sandy clay towards the south of the forest, thus the trees on the north are universally bad, while to the south the forest is very good in many places. It is traversed from north to south by the timber road from Choklong depôt to Champasaree, and thence to Silligoree. There was another timber road running from the Choongloong river to Champasaree, but it can now be traced only a short distance. In this forest is the Choudries' Bhita jote, the boundaries of which I have only been able to determine approximately even with the aid of the revenue survey map; it consists of 57 acres 2 roods of land now not under cultivation. The upper part of the forest has more the character of savannah; it is crossed by a few belts of small sal, but generally is very bad. The lower part consists, in many places, of a fine sal forest with tall well-grown trees. Here, however, the soil is much better. On the top of the steep ridge on the bank of the Mahanuddy is a thick forest of small useless trees much obstructed by creepers, and towards the edge of the Goolma river, after descending the ridge along it, a thick forest of damp-loving trees is found, and a few toon and katoos have been observed.

No. 10.—*Champasaree savannah forest.*—An irregularly shaped tract of present and old cultivation between the Champasaree Jhar sal forest and the boundary line. It is chiefly occupied by the cultivation of rice, maize, castor-oil, &c., by the squatters of Champasaree Mechia Busteo, and, as forest, is of no value whatever. The boundary line separates it from land belonging to Mr. Lloyd and Sundao Gwal.

No. 11.—*Mahanuddy Khair forest.*—This forest occupies the whole length of the right bank of the Mahanuddy river as far as Government forest extends. It is bounded on the north by Hattisurra lower hill forest, on the east by the Mahanuddy river, on the south by the Moorgong tea estate (also khair forest), and on the west by the Moorgong savannah forest. It consists of the low-lying ground on the banks of the Mahanuddy, liable every year to be flooded. This land rises gradually in terraces from east to west, and the forest consequently improves in the same direction, as it is less liable to be washed away on the higher parts than the lower. The west boundary is a small ridge, at the foot of which, in most places, runs a small stream. The forest is much intersected by branches of the Mahanuddy, one of which has water in it all the year round, while the Mahanuddy itself is dry for many months. The soil is a sandy gravel evidently deposited by the river, and is rather difficult of penetration by the roots of the trees. Khair forms the most important element among the species of tree found growing in the forest; on the upper slopes are many trees of large size (*i. e.* large size, comparatively speaking, for khair), but the size of the trees decreases as they approach the river; and on the banks of the river itself the forest is merely a dense thicket of young khair. There are a few good sissu in the upper parts, and the principal other trees are semul, hulloray, and gineri. There is very little sale of timber from this forest, though many of the khair trees are mature. Timber could easily be extracted in the rains by the Mahanuddy river, or, at any season, by the road to Silligoree. In this country the manufacture of cutch is unknown, though a large profit might be made of such forests as this, even if it were merely from the thinnings. The Mahanuddy village, or "liquor shop" as it is called on the revenue survey maps, lies in this forest, but is only inhabited during the dry and hot seasons.

No. 12.—*The Moorgong savannah forest* is a large tract of land either now or at some former period under cultivation by the Mechis. It is bounded on the north by the Hattisurra lower hill forest, on the east by the Mahanuddy khair forest, on the west by the Moorgong sal forest, and on the south by Moorgong tea estate (forest of much the same description). The soil is a good sandy clay and is said to produce good crops. In this forest lies the Moorgong Mechi village, and the cultivation of these Mechi squatters extends over nearly the whole of the forest. In timber it is useless, there being none of any size, or indeed of any value whatever. Towards the north is a small extent of land where some rubber cuttings were planted which have now failed.

No 13.—*The Moorgong sal forest* occupies a tract of land on the Punchevnaie river. It is bounded on the north by the Sookna village cultivation and lower hill forest; on the east by the timber road and Moorgong savannah; on the south by the tea garden of the Moorgong estate and the Kynanooka jote; on the west by the Punchevnaie river and the Ganges-Darjeeling cart road. It is crossed by the Punchevnaie river and the Hattisurra Jhora, also by the timber road. The soil is very good, being the red sandy clay so much sought for by tea-planters; but is better towards the south than in the upper parts. The forest contains a few patches of very good sal, but none of any size; it is very much subject to damage by jungle fires which kill the seedlings and cause the older trees to become hide-bound. In one spot near the timber road some mahogany seedlings are said to have been planted; none are now to be found. In another, a short distance to the north of the mahogany and towards the Hattisurra Jhora, a few teak trees were put out, some are still living; but they have evidently suffered much from jungle fires. It is unfortunate that the valuation survey of this tract is not quite finished, a few more survey lines being still necessary to give the proper data. The sal appears to be tall and well grown, especially towards the Punchevnaie river. There are few other trees worthy of notice except, perhaps, a few "hurra" and "bahura,"—*terminalia chebula* and *belerica;* but they are not of any size. On the northern boundary is the Sookna village "Fowd Sing Mundul" under the Forest Department. The squatters have no rights in the forests.

6. *Timber depôts.*—The timber depots are as follows:—1*st*, Sivoke, on the Teesta river; 2*nd*, Choklong, at the point where the Choklong river leaves the hills; 3*rd*, Mahanuddy; 4*th*, Hattisurra; 5*th*, Sookna, near the Sookna village. Timber is carried out also by road, or by the Mahanuddy river to Silligoree, and by the Teesta river to Julpigoree.

7. *Timber markets and large towns in the vicinity.*—The chief markets are Silligoree and Julpigoree. To the former the timber is carried overland or floated down the Mahanuddy; to the latter it is floated by the Teesta.

The chief villages on the borders of the forest are:—1*st*, Shummur Danga; 2*nd*, Gorooomara; 3*rd*, Chumpasaree; 4*th*, Dumragong; 5*th*, Sookna Hât and Kynanooka.

8. *Lines of Export.*—These are down the Teesta to the Brahmaputra, and down the Mahanuddy towards the Ganges. The Teesta is fit for floating during a great portion of the year, but its current is very violent. The Mahanuddy is inferior for floating.

9. *List of villages remaining within the forest boundaries, limits of each, and rights on the forests possessed by the inhabitants.*—In the forest itself are these villages at the pleasure of the Forest Department, from which they hold the right of cultivating land; they have no rights on the surrounding forests:—1*st*, Champasaree, in the Champasaree savannah forest—ten cultivators paying Rs. 12 each per annum; they cultivate rice, cotton, castor-oil, maize, &c., in the waste lands in that savannah; they can only cut useless species of trees, and have no grazing rights beyond the extent of their land. 2*nd*, Moorgong, in the Moorgong savannah forest—ten cultivators paying Rs. 12 each per annum; cultivation and rights, the same as those at "Champasaree." 3*rd*, Sookna or Punchevnaie—five cultivators at Rs. 4 each per annum—on the Punchevnaie river, north of the Moorgong sal forest. They cultivate rice, maize, murwa, &c., on an extent of about 30 acres.

10. *Statement of any rights possessed by the inhabitants of the surrounding districts in respect to grazing cattle, fuel, grass, bamboos, &c.*—No such rights exist.

11. *The map of the range* on a scale of two inches to the mile is appended.

12. *Working plan.*—The materials necessary for a preliminary working plan are—1*st*, *area of the different classes of forest.*—This has been given under (1). 2*nd*, *amount of growing material.*—The results of the surveys are given in the appended Form II. 3*rd*, *rate of growth of the important trees.*—These data are not yet complete, and the drawing up of the preliminary working plan has therefore to be postponed until after next season.

J. SYKES GAMBLE, B.A.,
Assistant Conservator of Forests,
Sikkim Sub-division.

PUNKABAREE,
The 1*st July* 1873.

No. 1.

FORM I.—*Statement showing the trees growing in the* TEESTA AND SIVOKE SISSOO FOREST *along the banks of the Rivers Teesta and Sivoke.*

NOTE.—B stands for Bengali; P for Paharia; M for Mechi; and L for Lepcha.

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Dalbergia sissoo, Roxb. ...	Sissoo, B	... ...	A few pretty large size on the Sivoke River. Elsewhere small.
2	Acacia catechu, Willd. ...	Khair, B	... ...	In patches here and there; none very large size.
3	Albizzia elata, Benth. ...	Safeid Siriss, B ...	... ...	Common everywhere; sometimes alone, or mixed only with the following. Some very large size.
4	Albizzia sp.	Bogra Siriss, P ...	... ...	Not so common as the preceding. Trees generally mutilated either for their leaves or their bark.
5	Bombax Malabaricum, D C	Semul, B	... ...	Here and there, often very large size.
6	Cedrela toona, Roxb. ...	Toon, B; Tooni, P	... ...	One or two here and there; the seeds probably brought down by floods and deposited in the raths.
7	Shorea robusta, Roxb. ...	Sâl, B	... .	One or two here and there; seeds probably carried from the sâl forests of the plateau and Shummur Danga.
8	Terminalia glabra, W and A	Saj, B	... ...	Very few, and those chiefly near the hills.
9	Erythrina	Furrud, B ...	... ...	Generally scattered over the forests; corky bark. Soft wood.
10	Sponia Orientalis, Voigt. ...	Kooain, B	... ...	Common on the edges towards the hills.
11	Dillenia pentagyna, Roxb....	Tatri, P; Akshi, M	... ...	Here and there, chiefly towards the edges of the forest.
12	Mallotus albus	Mallata	... ...	Common towards mixed forest.
13	Cratœva religiosa, Ham. ...	... ...	... ...	Towards the foot of the hills in shady parts.
14	Sterculia villosa, Roxb. ...	Oodal	... ...	A few to be found scattered over the forest.
15	... ...	Pooaputta, P ...	... ...	Small tree; compound leaves; rare.
16	Terminalia sp.	Paneesaj	... ...	A few small ones to be found near Sivoke River.
17	Ehretia	Boeri, P	... ...	Tree. Flowers eaten. Not common in this forest.
18	Grewia elastica, Roxb. ...	Sealposera, P ...	... ...	Not common. A few on Sivoke Island.
19	Lagerstrœmia parviflora, Roxb.	Seeda	... ...	Few, and those very small.
20	Eugenia jambolana, Roxb ..	Jamun	... ...	Seedlings very common.
21	Phyllanthus emblica, I. ...	Aonla, B; Owla, M	... ...	Only one or two observed.
22	... ...	Gayo, P	... ...	Only one or two seen.
23	Mimosa rubicaulis	Aradi Kanta ...	... ...	Thorny shrub, extremely common.
24	Acacia rugata	Hurrari Kanta ...	... ...	Thorny climber, very common.
25	Capparis olacifolia, Hf. & T...	Haia, P	... ...	A few near the Sivoke Hills. Shrub.
26	Pueraria tuberosa	Berali Lars, P ...	.. ..	Blue flowered leguminous climber, very common and difficult to penetrate.

No. 2.

FORM I.—*Statement showing the trees growing in the* SHUMMUR DANGA SAL FOREST *between the Teesta River and the Singaree Pahar Ridge.*

NOTE.—B stands for Bengali; P for Paharia; M for Mechi; and L for Lepcha.

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Shorea robusta, Roxb. ...	Sal, B	... ...	The chief tree, sometimes of large size, runs in belts parallel to the Teesta and separated by savannah.
2	Terminalia glabra, W and A	Saj, B	... ...	Common everywhere. One belt almost pure, and containing many very large trees.
3	Eugenia jambolana, Roxb ...	Jamun, B	... ...	Very common, but chiefly with saj in the belt above spoken of, where found of large size.
4	Careya arborea, Roxb. ...	Koombi, B ...	... ...	Common everywhere, but chiefly with sal.
5	Eugenia	Kiamoni, P ...	... ...	Resembles koombi, but has white bark, and is smaller; opposite leaves.
6	Butea frondosa, Roxb. ...	Palass, B	... ...	Common in belts of savannah forest; always much distorted in form.
7	Bombax Malabaricum, D C ..	Semul, B	... ...	Here and there a few, generally of large size.
8	... ...	Maidal, P	... .	A small tree, with fruit of the size and shape of the guava; cooked and eaten by Mechis.
9	Bauhinia variegata	Taki, P	... ...	Grows sometimes of large size.
10	Bauhinia Malabarica, Roxb	Koirahlo, P ...	... ...	In sal and saj belts; common.
11	Callicarpa arborea, Roxb. ...	Goehlo, P	... ...	In savannah forests and in the worthless part towards the Teesta River.
12	Stereosperinum suaveoleus, W Ic	Parari, P	... ...	Common throughout the forest.
13	Symplocos racemosa, Roxb.	Kaiday, M; Pudlikhat, P.	... ...	Scattered here and there, especially in long grass.
14	... ...	Mahow, M; Koopeenay, P.	... ...	In bad places; common.
15	Sterculia villosa, Roxb. ...	Oodal	... ...	Not many seen; a few large ones in the saj belt.
16	Lagerstræmia parviflora, Roxb.	Seeda	... ...	Not very common; many seedlings towards East in bad part.
17	Albizzia elata, B	Safeid siriss ..	... ...	Common towards the sissoo forest on the Teesta bank.
18	... ...	Debree lara, P ..	... ...	Immense creeper; very common; should be cut from sal and saj.
19	Bauhinia Vahlii, W and A	Borla	4′ 6″	Immense creeper; should be cut.
20	... ...	Natabheri, P ...	... ...	Small tree, reddish wood.

No. 3.

Form I.—*Statement shewing the trees growing in the Singaree Pahar Mixed Plains Forest, on and below the ridge surrounding the Sivoke Sál Forest towards the Teesta and Sivoke Rivers.*

Note.—B stands for Bengali; P for Paharia; M for Mechi; and L for Lepcha.

No.	Systematic name.	Native name.	Size when full grown.	Remarks.
1	Cedrela Toona, Roxb. ...	Toon, B; Tooni, P	... ...	A few large trees to be found, chiefly on the side of the Sivoke Jhora; seedlings everywhere.
2	Castanea	Katoos, B, M, and P	... ...	Common throughout the forest, especially in the swampy parts towards Shummur Danga.
3	Ficus obtusifolia	Burr, B; Lesow, P	... ...	The small-leaved India-rubber, a bad kind, giving a waxy kind of rubber; commoner than the other kinds.
4	Ficus elastica, Roxb. ...	Lesow, P; Yok, L	... ...	The true India rubber; a few trees to be found, chiefly towards the Sivoke Jhora.
5	Shorea robusta, Roxb. ...	Sal, B	... .	On the upper part of the Singaree Pahar slopes adjoining Sivoke sal forest, a few.
6	Terminalia gladra, W and A	Saj, B	... ...	On the slopes and in the forests at the foot of the ridge towards Shummur Danga.
7	Dillenia Indica, L	Chalta, B	... ...	Red bark; common, especially on the banks of small streams; edible fruit.
8	Sauranja	Gogen, P	... ...	Small tree; common throughout.
9	Cullenia excelsa (?) ..	Banj, P	... ...	Huge tree, principally found towards Sivoke Jhora. Very much buttressed stem.
10	Mangifera sylvatica, Roxb...	Am, B	... ...	Big tree; not very common.
11	Cinnamonum albiflorum ...	Dalchini, B ...	... ...	Small-leaved species; very common; leaves used for curries.
12	Cinnamonum	Dalchini, B ...	... ...	Large-leaved species; very common; leaves not used.
13	Eugenia	... ...	... ...	Big tree; chiefly found on slopes near the Sivoke Jhora.
14	Nauclea Cadamba	Kuddum, B and P	9 feet	Big tree; not very common.
15	Pteraspermum acerifolium, Willd.	Hattipaila, P ...	... ...	Big handsome tree; large leaves, whitish underneath. Said to give good timber. Common on slopes.
16	Macaranga Indica	Dugdukti, M ...	... ...	Small tree, pellate leaves, found in marshy places.
17	....	Fullidha, P ...	... ...	Tree; leaves large, whitish, not very common.
18	Alstonia Scholaris, R. Br. ...	Chatwan	4 to 6 feet	Not many large trees seen, but a good many seedlings.
19	Ficus infectoria	Pakar	... ...	On the slopes of Singaree Pahar, useless.
20	Ficus, Sp.	Borr	... ...	On the slopes of Singaree Pahar, useless.
21	Tetranthera, Sp.	Seora, P	... ...	Common in the moist evergreen forest.
22	Meliosma simplicifolia, Bl...	Kosroo, P ...	... ...	Very common, especially on the banks of small streams.
23	Eugenia, Sp.	Murmurray ...	... ...	Big tree; very common.
24	Duabanga Sonneratoides ...	Lamputtia ...	... ...	Very few seen
25	Turpinia pomifera	Putputta, P ...	... ...	Enormous leaves; few very big seen.
26	... ...	Choori, P	... ...	Large leaves; rather common on east.
27	Wendlandia coriacea ...	Tilgia, P	... ...	Small tree; common on upper slopes of the ridge.
28	Lansium, Sp.	Pooalay, P ...	... ...	Small tree; has red flower.
29	Magnoliaceæ (?)	Joben	... ...	Large leaves; not very common.
30	Calamus	Bet	... ...	Two species of cane are very common.
31	Pandanus odoratissimus ...	Keonhai, M ...	... ...	Very common, though not very large.
32	Calophyllum...	.. ..	... ...	Seedlings only found.
33	Homoroya	Bajadunti, P ...	... ...	Small tree, with hard white wood; common.
34	Bauhinia anguina	Nai willi lara, P ...	... ...	Snake stem creeper; very common.
35	Bauhinia vahlii, W and A ...	Borla	... ...	Common on slopes of Singaree Pahar.
36	Murraya paniculata ...	.....	... ...	Small tree of orange family; very hard firm wood; found in a few places on Sivoke side.
37	Gordonia Wallichii... ...	Chalowuee ...	... ...	Few trees.

No. 4.

FORM I.—*Statement showing the trees growing in the* SIVOKE SAL FOREST *situated on an elevated plateau between the hills and the Byeuntpore Forests.*

NOTE.—B stands for Bengali; P for Paharia; M for Mechi, and L for Lepcha.

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Shorea robusta, Roxb. ...	Sal, B; Sukwa, M	8 cts.	The chief tree in the forest, in some places almost pure. Few very large ones to be found, as they have nearly all been cut formerly.
2	Terminalia glabra, W and A	Saj, B	... ...	No large trees seen, but it occurs frequently in seedlings and small trees
3	Gordonia Wallichii	Chalownee, M and P	... ...	A few good trees in one or two places, but it is not common in the forest.
4	Dalbergia latifolia, Roxb. ...	Sitsal, B; Sitisal, P	... ...	Found towards the foot of the hills, but the trees are few and very small.
5	Cedrela Toona, Roxb. ...	Toon, B; Tooni, P	... ...	One or two seedlings occasionally found on the edges of the forest, where the seeds come from the hills or mixed forest on the Singaree Pahar ridge. Not properly a tree of the sal forest.
6	Castanea	Katoos, M and P ..	... .	Also not properly a tree of the sal forest, but found occasionally on the west edge at the Goroomara river, and perhaps in some of the small streams.
7	Careya arborea, Roxb. ...	Koombi, B ...	... ...	Very common throughout the forest, especially towards the south, where it is nearly as numerous as sal.
8	Dillenia pentagyna, Roxb. ...	Akshi, M; Tutri, B and P.	... ...	Also very common throughout the forest in all parts.
9	Lagerstrœmia parviflora, Roxb.	Seeda, M and P ...	... ...	Very common on the North and East, where the long grass does not grow.
10	Eugenia Jambolana, Roxb....	Jamun, M and P...	... ...	Very common throughout the forest, sometimes of very large size.
11	Sterculia villosa, Roxb. ...	Oodal, M and P ...	10′ 1″	Very common towards the ridges on the North and East, and in any spots where fires are not frequent.
12	Stereospermum suaveolens ...	Parari, M and P ..	... ...	Found generally spread over the forests, but none of very large size.
13	Gmelina arborea, Roxb. ...	Gambari, B, M, and P.	... ...	Found towards the North and West on top of the ridge.
14	Callicarpa arborea, Roxb. ...	Gochlo, P; Jamti, M	... ...	Found in bad spots on the Eastern Boundary generally, where there is little or no sal.
15	Terminalia Chebula, W and A	Hurra, P and M ...	... ...	Found together in a few spots chiefly on the south and towards the Western Boundary.
16	Terminalia Belerica, Roxb ..	Burha, P and M ...	... .	Ditto ditto ditto ditto.
17	Garuga pinnata, Roxb. ...	Gia, M and P ..	... ...	A few on the North.
18	Symploces racemosa, Roxb...	Kaiday, M; Pudlikat, P.	... ...	Very common on the South in ground burnt over every year.
19	Phyllanthus Emblica, L ...	Owla, B and P; Owla, M.	... ...	General over the whole forest, but very small.
20	Colosanthes Indica, Bl ...	Totilla, M; Karamkanda, P.	... ...	Very few observed.
21	Acacia ferrugenia, D C ...	Khoul, M	... ...	A few towards the North, sometimes called "khair."
22	Bauhinia Malabarica, Roxb.	Koriahlo, P ...	... ...	Towards the foot of the hills; pretty common in poor forest.
23	Bauhinia variegata	Taki, P	... ...	A few observed towards the West.
24	.. ..	Gayo, P	... ...	Rather common in bad places to West.
25	Rottlera tinctoria, Roxb. ...	Sindooria, M and P	... ...	Only one observed of any size; many seedlings towards West.
26	Michelia	Champ, P	... ...	A few seedlings only observed.
27	... ...	Gundrow, M ..	... ...	A thorny shrub; very common
28	Alstonia scholaris, R Br. ...	Chatwan, B, M, and P.	... ...	Only one observed on the Eastern boundary, and a few seedlings.
29	Eugenia	Kiamoni, P ...	... ...	Resembles koombi, but white bark and opposite leaves.
30	... ...	Mahow, M; Koopeenay, P.	... ...	Leaves used to feed silkworms; is the "Mooga" of Assam; common in bad places on the west.
31	Grewia elastica, Royle ...	Scalposera, P ...	... ...	Common almost everywhere, but rarely of any size.

No. 4.—(*Continued.*)

FORM I.—*Statement showing the trees growing in the* SIVOKE SAL FOREST, *situated on an elevated plateau between the hills and Byeuntpore Forests.*—(Continued.)

NOTE.—B stands for Bengali; P for Paharia; M for Mechi, and L for Lepcha.

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
32	Zizyphus rugosa .. .	Harray Baer ...	... ...	Small tree; common in most parts.
33	Bauhinia Vahlii, W and A ..	Borla	... ...	Immense climber; used for ropes; seeds edible.
34	... ...	Debre Lara ...	... ...	Immense climber; wood in concentric layers; gives a red gum. Leguminosæ Butea.
35	Holarrhena antidysenterica, Wall.	Dudhali, M ...	... ...	Common small tree; flowers in April or May.
36	Heynea trijuga	Cherenjee	... ...	Small tree, not uncommon towards Sivoke.

No. 5.

FORM I.—*Statement showing the trees growing in the Gulma-Goroomara Sal Forest, lying between those two rivers and bounded on the north by the foot of the hills.*

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Shorea robusta, Roxb. ...	Sal ...	.....	Good on the small ridge in the centre of the forest, but not many trees in the long grass towards the rivers and the hills.
2	Terminalia glabra, W. and A.	Saj ...	.....	Chiefly found isolated here and there; a few large sized trees, not many seedlings.
3	Eugenia Jambolana, Roxb. ..	Jamun ...	.....	On the central ridge; common.
4	Gordonia Wallichii .	Chalowanee ...	.....	Only two or three trees found.
5	Dalbergia latifolia, Roxb. ...	Sitsal ...	... .	A few seedlings found towards North.
6	Cedrela Toona, Roxb. ...	Toon ...	.....	A few seedlings found towards Gulma River.
7	Stereospermum suaveolens...	Parari ...	.....	Pretty common throughout.
8	Butea frondosa, Roxb. ..	Palass ...	.....	Common in long grass towards the rivers.
9	Careya arborea, Roxb. ...	Koombi ...	.....	Pretty common with sal.
10	Dillenia pentagyna, Roxb. .	Tatri ...	.....	Common on the ridge with sal.
11	Lagerstrœmia parviflora, Roxb	Seada ...	.....	On the ridge, not very common; one or two big trees towards North.
12	Gmelina arborea, Roxb. ...	Gambari ...	.....	Not very common.
13	Callicarpa arborea, Roxb. ...	Goehlo P. ...	... .	Found in grass jungle.
14	Bauhinia Malabarica, Roxb.	Koirahlo P. ...	.....	Ditto ditto ditto.
15	....	Latikar P. ..	.....	Ditto ditto ditto, small tree.
16	Zizyphus rugusa ...	Harray Baer P. ..	.....	Ditto ditto ditto, ditto.
17	Ehretia ...	Boeri P. ..	.....	In one or two spots near Goroomara River
18	....	Kaindul P. ...	.....	Ditto ditto.
19	Machilus odoratissimus ...	Kowlo P ...	.....	Ditto ditto.
20	....	Kudmero P. ...	.....	Ditto ditto.
21	Ficus cunia ...	Kunhya M. ... Kunnai P.	.....	Near the Gulma and Goroomara Rivers in one or two places.
22	Melastiora Malabathricum	Choulisy P. ...	.....	Shrub, in the rivers, common.
23	....	Maidal P. ...	.....	Common in grass jungle.
24	Symploces racemosa ...	Kaiday M. ... Pudlikat P.	.....	Found in grass jungle, not very common.
25	Eugenia Sp. ...	Kiamoni P. ...	.....	A few seen in grassy places.

No. 6.

FORM I.—*Statement showing the trees growing in the Champasaree Jhar Sal Forest, between the Mahanuddy and Gulma Rivers.*

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Shorea robusta, Roxb. ...	Sal, Sukwa ...	.....	Very sparingly found over the northern portion of the forest, but better towards the South, where it is of much larger size.
2	Terminalia glabra, W. and A.	Saj ...	.....	Not very common, with the exception of a good many seedlings and stump-shoots towards the North.
3	Lagerstrœmia parviflora, Roxb.	Seeda ...	.....	Very common towards the North—but only of small size.
4	Careya arborea, Roxb. ...	Koombi ..	.....	Common, but of small size.
5	Stereospermum Suaveolens. W. Ic.	Parari ..	.....	A large tree, generally scattered over the forest.
6	Dillenia pentagyna, Roxb .	Tatri P., Akshi M.	.....	Commonly scattered over the forest.
7	Sterculia villosa, Roxb. ...	Oodal ...	.....	Not very common.
8	Acacia ferruginea ...	Khoul ..	.....	Common in the upper and eastern parts.
9	Callicarpa arborea ...	Gochlo P., Jamti M.	.....	Common in bad parts towards west.
10	Bombax Malabaricum, D. C.	Semul ..	.....	A few large ones here and there.
11	Dalbergia latifolia, Roxb. ..	Sitsal ..	.....	Seedlings common towards North; no large trees.
12	Cedrela toona, Roxb ..	Toon Tooni P. ..	.....	One or two on Northern boundary.
13	.....	Letikar .	.....	A small tree, very common.
14	Wendlandia cinerea, D. C. ..	Mimri ...	.....	Ditto ditto towards West.
15	Bauhinia variegata .	Kachnar ...	.....	Ditto ditto towards North.
16	Terminalia Chebula, W. and A.	Hurra .	.....	Not common.
17	.....	Maidal .	.....	Ditto.
18	Garuga pinnata ...	Gia M. Dubdubbi P.	.....	Common on South towards Champasaree.
19	Craton Candatus ...	.....	.....	Large shrub common on the banks of streams towards the North, *e. g.* Choonglong Jhora.
20	Heynea quinquejuga ...	Cherenjee ..	.....	One specimen only found in Choonglong R.
21	Homoroya ..	Mairi ...	.....	Ditto ditto ditto.
22	Pongamia glabra ...	.....	.....	One specimen seen. Large tree.
23	Ficus obtusifolia ...	.....	.....	One found in Choklong Jhora.
24	Ficus Roxburghii ..	.....	.....	Ditto ditto.
25	Ficus glomerata ...	.....	.....	Common in most places.

No. 7.

FORM I.—*Statement showing the trees growing in the Mahanuddy Khair Forest, along the right bank of the Mahanuddy River.*

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Acacia Catechu, Willd. ...	Khair ...	.....	Some of large size on the higher parts; forms thick forest towards the river. Not used by natives even to extract khair.
2	Dalbergia Sissoo, Roxb. ...	Sissoo ...	.....	Generally scattered about 1 to 5 khair; a few large ones on the higher parts.
3	Bombax Malabaricum, D. C.	Semul ...	.....	Common towards the West.
4	Odina Wodier, Roxb. ...	Hulloray ...	.....	Large tree; common near Camp Mahanuddy; flowers in April, when leafless.
5	Albizzia elata Benth ...	Safeid Siriss ...	.....	Generally spread over the forest.
6	Cedrela Toona, Roxb. ...	Toon Tooni P. ...	.....	A few small trees here and there.
7	Trewia nudiflora ...	.....	.....	Two good sized trees on Silligoree Road.
8	....	Gineri ...	.....	Common small tree; wood used to strike fire.
9	.....	Padigay ...	.....	Ditto ditto.
10	Holarrhena frubescens Wall	Dudhkoori ...	.....	Both common throughout the forest.
11	" Antidy ventorica Wall	Dudhali ...	.....	
12	Ficus cunea Buch ...	Kannai ...	.....	One or two at the foot of the hills.
13	Gmelina arborea, Roxb. ...	Gambari ...	.....	Ditto ditto.
14	Grewia elastica Royle ...	Sealposira ..	.....	A few trees seen.
15	Garuga pinnata, Roxb. ...	Gia M. Dubdubbi P.	.....	A few near the Camp.
16	Acacia rugata ..	Hurrari kanta ..	.....	Very common large thorny shrub.
17	Capparis olacifolia H. S. & T.	Hais P. ...	.....	Ditto ditto.

No. 8.

FORM I.—*Statement showing the trees growing in the Moorgong Sookna Sal Forest, between Moorgong village and the Cart road.*

No.	Systematic name.	Native name.	Size when full grown.	REMARKS.
1	Shorea robusta, Roxb. ...	Sal Sukwa, M. ...	.....	Grows very well, especially towards Sookna.
2	Terminalia glabra, W. and A.	Saj ...	.....	Not many trees found.
3	Terminalia Bilerica, Roxb.	Buhura ...	.....	Common tree, but small size.
4	Terminalia Chebula, W. and A.	Hurra ...	.....	Ditto ditto.
5	Lagerstrœmia parviflora, Roxb	Suda ...	.....	Ditto ditto.
6	Bombax Malabaricum, D C.	Semul ...	... .	A few large trees near dragging path and Moorgong tea garden.
7	Dillenia pentagyna, Roxb. ...	Tatri P., Akshi M.	....	Not many trees of large size.
8	Sterculia villosa, Roxb. ...	Oodal ...	.....	Pretty common.
9	Sterculia colorata, Roxb. ...	Omra ...	.....	A few near Moorgong tea garden.
10	Careya arborea, Roxb. ...	Koombi ...	.....	Common throughout the forest.
11	Eugenia Jambolana, Roxb.	Jamun ...	... .	Common.
12	Eugenia ...	Kiamoni ..	.....	Ditto.
13	Callicarpa arborea, Roxb. ...	Goehlo P., Jamti M.	....	Very common.
14	....	Latikar	.. ..	Common small tree.
15	Calesanthes Indica Bl. ...	Totilla M., Karamkanda P.	.....	Many small trees near dragging path.
16	Acacia ferruginea D. C. .	Khoul ...	....	Common.
17	Cassia fistuala L.	Amúltas ...	....	Found towards the hills.
18	Elæocarpus rugasus .	... .	... .. .	Large tree; one or two found in Hattisurra R.
19	Micromelum pubescens ...	.....	....	One found in Hatisurra R.
20	Castanea Sp. . .	Katoos ...	.....	Ditto ditto.
21	Grewia elatica Royle ...	Sealposera ...	.....	Common small tree.
22	Zizyphus rugosa	Harray Baer .	.....	Ditto.

T. S. GAMBLE, B.A.,

Assistant Conservator of Forests, Sikkim Sub-Division.

FORM No. 2.

Valuation Surveys in the Mahanuddy Terai Range.

No. 1. Teesta and Sivoke Sissoo forest.
„ 2. Shummur Danga Sâl forest
„ 3. Singaree Pahar Mixed Plain forest.
„ 4. Sivoke Sâl forest.
„ 5. Gulma-Goroomara Sâl forest.
„ 6. Champasaree Jhar Sâl forest.
„ 7. Mahanuddy Khair forest
„ 8. Moorgong Sâl forest.

No. 1.

Statement showing the result of Forest Valuation Surveys in the Teesta and Sivoke Sissoo Forest, 322 acres, 1 rood, 8 poles.

No.	Position of Line of Survey.	TREES MEASURED.																	Area of survey in acres.	Remarks.
		Sissoo.					Khair.				Sal.		Saj.			Sitsal.		Toon.		
		I.	II.	III.	IV.	V.	I.	II.	III.	IV.	I.	II.	I.	II.	III.	I.	II.	I.		
		Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Under 1 cubit.	Between 1-2 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Under 1 cubit.	Between 1-2 cubits.	Under 1 cubit.	A. R. P.	
1	Road from Sivoke to Silligoree from the Sivoke river to edge of mixed forest, 860 feet	262	46	...		...	42	5	.	...	1	...	..	...	...	...	...	. .	1 3 36	All small trees, with long grass and wild plaintains.
2	A zigzag line from the edge of Sivoke river to edge of mixed forest, across a bend to mixed forest again, then back to Sivoke Jhora, 3,600 feet.	470	85	13	6	..	6	20	3	1	7	.	...	...	..	...	...	1	8 1 0	At first pretty clear, with some good straight well-grown young sissoo, then a patch of thick very tall grass with nothing, then a few largish trees and some long grass. Many dead trees of sissoo and sirria lying about on the ground.
3	From a point on Sivoke river south to edge of mixed forest, 390 feet.	20	8	8	2	...	...	1	1		1	...	...	..	...	..	1	.....	0 3 23	Forest pretty good; a few large trees.
4	From a point on line No. 2 north to edge of Sivoke river, 1,200 feet.	200	28	8	...	..	2	7	...	1	...	..	...	...	..	.	.	.....	2 3 1	Long grass, with a few seedlings in marshy ground.
5	Slanting line from point where Sivoke river leaves the hills to the edge of mixed forest close to a point on the line No. 6 of Sangaree Pahar mixed forest, 3,000 feet.	40	43	40	17	2	1	...	...		1	1	1	...	1	2	1	.....	6 3 22	At first the forest was good, but afterwards tall grass was met with, and very few trees were found. Many different species of other trees observed.
6	From point where Sivoke river leaves hills south to mixed forest, 700 feet.	2	3	4	2		.		..	...	..	...	...	5	..	...	...	.....	1 2 17	Forest chiefly of big trees of the Lower Hill kinds, with a few sissoo.
7	Left b nk of Sivoke river across a bend, 1,260	284	38	...	...	...	12	4	1	...	1	...	...	...	...	...	...	.....	2 3 22	Very long tall grass, with young sissoo; difficult to penetrate.
8	Through Sivoke plain, 1,950 feet	1,681	26	1	...	...			.	...	...	...	...	..	...	...	...	.....	4 1 36	Very long grass, with thick crop of young sissoo; low ground to north, but rises as it approaches the Teesta.
9	From opposite Sivoke Bungalow to a point on the Teesta south-east 1,870 feet.	270	87	...	...	.	20	9	1	...	...	...	...	...	...	...	...	2	4 1 7	Good piece of young sissoo about 20 feet high at first, afterwards long grass and a few khair.

10	From a point on No. 9 south to a branch of Teesta river, 1,120 feet.	306	126	5	1	...	10	27	7	...	...	...	...	...	...	...	...	2	2 2 11	Very good piece of sissoo trees; pretty straight, and very little grass.
11	From a point on Teesta river south-west to a nuddy forming boundary of Shummur Danga forest, 366 feet.	14	6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	0 3 14	Long grass, with hardly any trees.
	Total	3,549	496	79	28	2	93	73	13	2	11	1	1	5	1	2	1	7	.....	

Contents of forest.

	Saj.	Sissoo.	Khair.	Total
Young trees (3′ to 4′ 6″)	8	679	112	799
Trees (4′ 6″ to 6′)	.....	240	17	257
Old trees (above 6′)	.....	17	.....	17
Total	8	936	129	1,073

No. 2.

Statement showing the results of Forest Valuation Surveys in the Shummur Danga Sal Forest, 522 acres, 1 rood, 5 poles.

No.	Position of Line of Survey	Trees measured. Sal. I. Under 1 cubit.	Sal. II. Between 1-2 cubits.	Sal. III. Between 2-3 cubits.	Sal. IV. Between 3-4 cubits.	Sal. V. Between 4-5 cubits.	Saj. I. Under 1 cubit.	Saj. II. Between 1-2 cubits.	Saj. III. Between 2-3 cubits.	Saj. IV. Between 3-4 cubits.	Saj. V. Between 4-5 cubits.	Saj. VI. Between 5-6 cubits.	Saj. VII. Between 6-7 cubits.	Saj. VIII. Between 7-8 cubits.	Saj. IX. Between 8-9 cubits.	Chalowuee. I. Under 1 cubit.	Chalowuee. II. Between 1-2 cubits.	Chalowuee. III. Between 2-3 cubits.	Sitsal. I. Under 3-4 cubits.	Sitsal. II. Between 4-5 cubits.	Sitsal. III. Between 5-6 cubits.	Area of survey in acres. A. R. P.	Remarks.
1	Line from a point in a line nearly east and west from the Singaree Pahar mixed forest to the Jhenaikhoorie nuddy, thence slightly northwards to a branch of the Teesta, 3,970 feet.	254	85	46	13	.	21	28	29	29	11	2	1	...	1	1	2	1	...	...	...	9 0 28	The line first passed through a patch of clear grass, then through a young sal forest, good, but much troubled by creepers, then through more grass, then through a saj forest with some fine trees, and a great many jamun, afterwards a poor sort of mixed forest with a few sal here and there. Very many creepers, some of enormous size.
2	Line from a point 1,022 feet from the beginning of No. 1 in a N. E. direction to a branch of the Teesta, 2,800 feet.	275	17	8		1	7	12	13	12	7	1	...	...	...	.	...	...	..	...	...	6 1 28	First through a young sal forest, then through a good deal of long grass, some good saj forest and a mixed forest with one or two sal trees to the edge of the branch of the Teesta. Many creepers.
3	From the foot of the Singaree Pahar on line No. 1, S. E. general direction to the second boundary post below the ridge, 6,652 feet.	1,500	443	151	8	1	75	46	14	4	...	..	...	...	...	...	1	...	3	2	1	15 1 3	First through sal forest, which had lately been burnt over, then good high forest, and afterwards part of the site of an old Mechia village, then alternate green and sal forest to the edge of the mixed forest.
4	From the border of the Sissoo forest close to the Teesta river south-west to the Singaree Pahar, 3,085 feet.	173	29	20	3	..	29	44	23	15	6	1	...	...	...	...	...	...	...	..	...	7 0 13	The line passed through bands of grass forest and occasional choked up nullahs, and sal and saj forest of pretty good appearance though the creepers were very bad.
	Total ...	2,202	574	225	24	2	132	130	79	60	24	4	1	..	1	1	3	1	3	2	1	37 3 32	

Contents of forest.

	Sal.	Chalowanee.	Saj.	Sitsal.	Total.
Young trees	3,091	14	1,085	14	4,204
Trees	330	.....	824	.....	1,154
Old trees	27	.....	412	.....	439
Total ...	3,448	14	2,321	14	5,797

No. 3.

Statement showing the results of Forest Valuation Surveys in the Singaree Pahar Mixed Plain Forest, 270 acres, 1 rood, 21 poles.

No.	Position of Line of Survey.	TREES MEASURED.																														Area of survey in acres.	Remarks.
		Sal.					Toon.					Saj.						Chalowree.						Katoos.					India Rubber.				
		I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.	VI.	I.	II.	III.	IV.	V.	VI.	I.	II.	III.	IV.	V.	Mature.	Seedlings.		
		Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits	Between 5-6 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Between 5-6 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.			A. R. P.	
1	South-east from Singaree Pahar to edge of Shummur Danga, 2,302 feet.	.	2	...	1	1	1	...	...	.	...	1	1	..	...	...	...	...	1		...		..	145	45	11	3	1	...	...	5 1 6	The slope of the Singaree Pahar is at first gentle, then steeper. The Rewahee Jhora runs at its base in a dense cane brake with very swampy ground, and trees of different species, afterwards the forest becomes more open, and some good Katoos and Saj are met with, then crossing a strip of grass the mixed forest is entered again, with more Katoos.
2	From the top of Singaree Pahar to edge of Shummur Danga, continuing No. 4 of Shummur Danga forest, 1,350 feet.	5	1	1	...	...	2	...	...	...	...	.	1	...	2	4	...	...	...	...	..			9	6	2	..	...	1	1	3 0 16	The same characteristics as the other parts of the forest. The rubber was *Ficus obtusifolia*. The first part near Shummur Danga was pretty dry, and some good saj trees were found.
3	From top of Singaree Pahar to foot of ridge, thence two lines to the two lines Nos. 1 & 3 of Shummur Danga Sal forest, 840 feet.	4	2	1	...	...	2	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	..	3	1	...	...	...	..	2	1 3 25	The same as the other parts, but fewer good trees, and a dense cane growth. The rubber, as in line No. 2, was *Ficus obtusifolia*, an almost useless kind.
4	Along the road from Sivoke to Silligoree from edge of Sissoo forest to top of Singaree Pahar, 1,130 feet.	50	20	3	1	...	4	1	...	...	...	..	..	1	1		...	...	...	..	...	...	...	..	...	...	...	...	...	..	2 2 15	Ground not being swampy, consequently more sal and saj, with a few toon; gradual ascent.

No. 3.—(*Continued.*)

No.	Position of line of survey.	Terms measured. Sal. I. Under 1 cubit.	Sal. II. Between 1-2 cubits.	Sal. III. Between 2-3 cubits.	Sal. IV. Between 3-4 cubits.	Sal. V. Between 4-5 cubits.	Toon. I. Under 1 cubit.	Toon. II. Between 1-2 cubits.	Toon. III. Between 2-3 cubits.	Toon. IV. Between 3-4 cubits.	Toon. V. Between 4-5 cubits.	Saj. I. Under 1 cubit.	Saj. II. Between 1-2 cubits.	Saj. III. Between 2-3 cubits.	Saj. IV. Between 3-4 cubits.	Saj. V. Between 4-5 cubits.	Saj. VI. Between 5-6 cubits.	Chalowner. I. Under 1 cubit.	Chalowner. II. Between 1-2 cubits.	Chalowner. III. Between 2-3 cubits.	Chalowner. IV. Between 3-4 cubits.	Chalowner. V. Between 4-5 cubits.	Chalowner. VI. Between 5-6 cubits.	Katoos. I. Under 1 cubit.	Katoos. II. Between 1-2 cubits.	Katoos. III. Between 2-3 cubits.	Katoos. IV. Between 3-4 cubits.	Katoos. V. Between 4-5 cubits.	India rubber. Mature.	India rubber. Seedlings.	Area of survey in acres. A. R. P.	Remarks.
5	From the top of the Singaree Pahar and north to the edge of Sivoke Jhora Sissoo forest, 760 feet.	...	...	..	...	...	7	2	2	2	...	...	...	...	...	..	...	..	...	...	...	.	1	2	...	...	...	...	...	2	1 2 39	A very good bit of forest; the rubber seedlings were of the true kind (*Ficus Elastica*), and the Toon trees very good.
6	From a point in a small nuddy to edge of Sissoo forest, 850 feet.	...	...	...	...	...	7	2	...	...	1	...	...	...	...	...	1	...	1	...	...	...	.	3	1	...	..	..	...	...	1 3 32	Very good forest, fit for the growth of India-rubber; chiefly on a gentle slope, then swampy.
7	From the edge of the Sissoo forest in general south-east line crossing No. 6 to the Singaree Pahar District, 1,000 feet.	...	...	...	...	...	7	3	...	1	1	...	..	...	...	...	...	..	...	...	...	...	...	9	1	...	..	1	...	...	2 1 7	Moist, slightly swampy, rising in a gentle slope on the hill, where a few good Toon were found.
	Total ...	59	25	5	2	1	30	8	2	3	2	1	2	1	3	4	1	..	2	...	...	...	1	171	54	13	3	2	1	5	18 3 20	

Contents of forest.

	Sal.	Chalownee.	Saj.	Toon.	Katoos.	Total.	India-rubber.
Young trees	71	.....	14	28	185	298	Seedlings ... 71
Trees	28	..	43	43	43	157	Old trees ... 14
Old trees	14	14	71	28	28	155	.....
Total ...	113	14	128	99	256	610	85

No. 4.

Statement showing the results of Forest Valuation Surveys in the Sivoke Sal Forest, 1,553 *acres,* 2 *roods,* 33 *poles.*

No.	Position of Line of Survey.	TREES MEASURED.																							Area of survey in acres.	Remarks.
		Sal.								Chalownee.					Saj.					Sitsal.			Toon.			
		I.	II.	III.	IV.	V.	VI.	VII.	VIII.	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.	I.	II.	III.	I.			
		Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Between 5-6 cubits.	Between 6-7 cubits.	Between 7-8 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.	Between 4-5 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.			
																									A. R. P.	
1	Road from Sivoke to Silligoree, from the beginning of Singaree Pahar to Bycuntopore forest Boundary, 13,324 feet.	3,888	810	315	123	14	...	..	...	3	6	4	4	5	12	1	...	...	...	...	...	...	.....		30 2 14	At first the forest is very good, clear of grass, and with an undergrowth of seedlings and small shrubs; the sal trees with good upright stems, and not suffering from the effects of fire. Afterwards the grass gradually appears, and the state of the forest decreases, till towards the boundary line; the trees are few, stunted or much knotted and twisted, and the grass beneath very dense.
2	Road leading from a point on the Silligoree road, distant 11,290 feet from Sivoke, to edge of the forest toward Mahanuddy, 3,673 feet.	1,956	290	85	13	5	...	...	...	2	...	...	...	...	.	...	...	...	...	...	...	...	... ..		8 1 29	Long grass nearly all the way; towards the hill, which forms the boundary, there is not so much, but the state of the trees is the same throughout. A few big trees, but hollow inside—all the sal evidently suffering from the effects of the yearly jungle fires.
3	A line across the forest nearly East and West from a point 1,100 feet N. of the junction of the roads from Sivoke to Silligoree and Mahanuddy, both ways, 6,220 feet.	3,646	483	135	25	6	..	1	1	2	9	9	3	3	55	5	2	...	2	...	...	...	.....		14 1 4	This line begins in a pretty good forest on the edge of the Singaree Pahar, with very little grass, but a great many creepers, and going westwards passes through patches, some with a few good sal trees with straight stems, and others with scarcely any thing but very long grass; toward the Gorcomara River the forest is rather better, and the sal and chalownee trees are good.

No. 4.—(*Continued.*)

No.	Position of Line of Survey.	TREES MEASURED																							Area of survey in acres	Remarks
		Sal.								Chalownee					Saj.					Sitsal.			Toon			
		I.	II	III	IV	V	VI	VII	VIII.	I	II	III	IV	V.	I.	II	III	IV.	V.	I	II	III	I			
		Under 1 cubit.	Between 1-2 cubits	Between 2-3 cubits	Between 3-4 cubits	Between 4-5 cubits	Between 5-6 cubits.	Between 6-7 cubits	Between 7-8 cubits	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits	Between 3-4 cubits.	Between 4-5 cubits	Under 1 cubit.	Between 1-2 cubits	Between 2-3 cubits	Between 3-4 cubits	Between 4-5 cubits.	Under 1 cubit.	Between 1-2 cubits.	Between 2-3 cubits.	Between 3-4 cubits.		A. R. P.	
4	From a point 4,500 feet distant from Sivoke in a line east to the Goroomara Hills.	2,940	186	125	18	.	.		.	1	6		...		7	1	...	.		31	3	1	1		12 2 20	For the first 3,000 feet very good forest, fine sal with straight stems, and many other species of trees in Form No 1. Afterwards, and crossing a jhora, long grass and poor forest with one or two sal trees and a few sitsal, has the appearance of having been formerly under cultivation.
	Total .. .	12,430	1,759	660	178	25		1	1	8	21	13	7	8	74	7	2	...	2	31	3	1	1		65 3 27	

Contents of forest.

	Sal.	Chalownee.	Saj.	Sitsal	Total
Young trees	15,543	306	47	71	15,967
Trees	4,192	165	.	24	4,381
Old trees	636	188	47		871
Total ...	20,371	659	94	95	21 219

No. 5.

Statement showing the results of Forest Valuation Surveys in the Gulma-Goroomara Sal Forest, 195 *acres,* 1 *rood,* 32 *poles.*

No.	Position of Line of Survey.	Trees measured. Sal. I. Under 1 cubit.	Sal. II. Between 1-2 cubits.	Sal. III. Between 2-3 cubits.	Sal. IV. Between 3-4 cubits.	Sal. V. Between 4-5 cubits.	Saj. I. Under 1 cubit.	Saj. II. Between 1-2 cubits.	Saj. III. Between 2-3 cubits.	Chalownee. I. Under 1 cubit.	Chalownee. II. Between 1-2 cubits.	Chalownee. III. Between 2-3 cubits.	Chalownee. IV. Between 3-4 cubits.	Sitsal. I. Under 1 cubit.	Sitsal. II. Between 1-2 cubits.	Area of survey in acres. A. R. P.	Remarks.
1	Along the road from Sivoke to Mahanuddy, crossing the Gulma River, 3,159 feet.	312	85	31	1	1	5	3	2	1	.....	1	1	.....	.....	7 1 0	First a piece of low ground with very little but tall grass, then a ridge with a pretty good sal forest, afterwards grass jungle, and beyond the Gulma forest with very few good species.
2	From a point on the road in a north-westerly direction to the Chuckoogheesa jhora, 2,950 feet.	2,134	96	44	4	2	6	.....	5	.....	.....	.....	.....	2	.....	6 3 2	The line rises in a slope to the top of a ridge, then through good sal forest till it descends to grass jungle with very few trees.
3	From the junction of the Gulma and Goroomara Rivers in a north-east direction across a bend of the Goroomara River, 1,300 feet.	20	2	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1 3 37	Very poor forest, hardly a tree to be seen but a few large semul. All long grass.
	Total	2,466	183	80	5	3	11	3	7	1	.....	1	1	2	.....	15 3 39	

Contents of forest.

	Sal.	Chalownee.	Saj.	Total.
Young trees	875	.....	85	960
Trees	61	12	.....	73
Old trees	37	12	.....	49
Total	973	24	85	1,082

No. 6.

Statement showing the results of Forest Valuation Surveys in the Champasaree Jhar Sal Forest, 1,670 acres, 2 roods, 28 poles.

No.	Position of Line of Survey.	Trees measured. Sal. I. Under 1 cubit.	Sal. II. Between 1-2 cubits.	Sal. III. Between 2-3 cubits.	Sal. IV. Between 3-4 cubits.	Sal. V. Between 4-5 cubits.	Sal. VI. Between 5-6 cubits.	Saj. I. Under 1 cubit.	Saj. II. Between 1-2 cubits.	Chalowneh. I. Under 1 cubit.	Chalowneh. II. Between 1-2 cubits.	Sitsal. I. Under 1 cubit.	Sitsal. II. Between 1-2 cubits.	Khair. I. Under 1 cubit.	Khair. II. Between 1-2 cubits.	Sissoo. I. Under 1 cubit.	Sissoo. II. Between 1-2 cubits.	Toon. I. Under 1 cubit.	Area of survey in acres. A. R. P.	Remarks.
1	From the foot of the hills crossing the Sivoke road southwards to the edge of the Mahanuddy, 3,060 feet.	160	24	1	...	...	...	14	1	.....	...	...	...	...	2	...	...	.....	7 0 4	A very poor part of the forest; along the edge of the steep bank of the Mahanuddy is a tangled thick forest of no value.
2	From the point on the Mahanuddy, where left off No. 1 eastwards to edge of Chandrie's Bhita, 2,050 feet.	257	77	3	...	...	...	...	...	.....	...	...	...	...	...	...	...	.....	4 2 33	Forest very bad, long grass except just now, when it has all been burnt by jungle fires—March 28th.
3	From a point on Choongloong Jhora and the Sivoke road southwards to the edge of the Mahanuddy, 5,404 feet.	80	192	40	2	...	...	..	...	.....	...	8	2	...	...	...	...	.....	12 1 25	Very bad at first, afterwards slightly better as the line gets further south.
4	From a point on the Mahanuddy straight across to the Gulma River, 9,470 feet.	700	242	55	10	...	..	...	...	1	1	4	2	...	...	...	...	.....	21 2 38	At first bad, gets better and better as the line gets towards the west, crossing some very good patches of fine straight sal, but very few of any size.
5	Along the Choklong Champasaree Timber road, 8,375 feet.	500	236	126	3	...	1	...	...	.....	...	..	...	3	2	1	1	.....	19 0 36	Bad towards the north, but the road crosses some patches, which are pretty good towards Champasaree.
6	Line east and west across the forest near the Gulma River, 3,600 feet.	380	82	12	1	...	...	...	...	.....	...	...	...	...	..	...	...	.....	8 1 2	A pretty good young forest, no old trees, cultivation (Mechi) of rice, &c., on either boundary.
7	Line along the Sivoke road from the Choklong river to the edge of the Mahanuddy, 4,100 feet.	203	38	3	1	...	...	9	1	.....	...	1	...	...	...	..	...	1	9 1 26	A bad bit of forest, long grass and small trees of no value; a little piece at the edge of the Mahanuddy is somewhat better.
	Total	2,280	891	240	17	...	1	23	2	1	1	13	4	3	4	1	1	1	82 3 4	

Contents of forest.

	Sal.
Young trees	4,824
Trees	342
Old trees	20
Total	5,186

No. 7.

Statement showing the results of Forest Valuation Surveys in the Mahanuddy Khair Forest, 573 *acres,* 16 *poles.*

No.	Position of Line of Survey.	Trees measured. Sissoo. I. Under 1 cubit.	Sissoo. II. Between 1-2 cubits.	Sissoo. III. Between 2-3 cubits.	Sissoo. IV. Between 3-4 cubits.	Khair. I. Under 1 cubit.	Khair. II. Between 1-2 cubits.	Khair. III. Between 2-3 cubits.	Khair. IV. Between 3-4 cubits.	Toon. I. Under 1 cubit.	Toon. II. Between 1-2 cubits.	Toon. III. Between 2-3 cubits.	Area of survey in acres.	Remarks.
													A. R. P.	
1	Along the road from camp Mahanuddy to Silligoree as far as the ridge forming the boundary of the forest, 5,400 feet.	24	134	53	3	296	413	101	7	4	.	1	12 1 23	A very good Khair forest along the ridge along which this road runs. The trees are old and many of them fit to cut, either for general purposes or the extraction of "cutch."
2	From the foot of the ridge along the road to the edge of the Mahanuddy river from Moorgong Bustee, 2,000 feet.	8	8	7	..	619	209	14	1	.....	.....	.....	4 2 15	The road descends gradually to the river; as it descends the large trees disappear, and their place is taken by a thick mass of thorny khair and shrubby plants.
3	From a point half way along No. 2 in a south-east direction to the edge of the Mahanuddy river, 5,554 feet.	252	22	...	.....	2,507	360	10	.....	.....	....	..	12 3 0	Through a dense forest of young Khair, very difficult to penetrate, but capable, if not too much spoilt by the sudden floods of the river, of becoming a good forest.
	Total ...	284	164	60	3	3,422	982	125	8	4	....	1	29 2 38	

Contents of forest.

	Sissoo.	Khair.	Toon.	Total.
Young trees	1,146	2,387	19	3,552
Trees	57	153	.....	210
Old trees	.....	....	... ..	.. ..
Total ...	1,203	2,540	19	3,762

No. 8.

Statement showing the results of Forest Valuation of Surveys in the Moorgong Sal Forest, 762 acres, 2 roods, 15 poles.

No.	Position of Line of Survey.	Trees measured. Sal. I. Under 1 cubit.	Sal. II. Between 1-2 cubits.	Sal. III. Between 2-3 cubits.	Sal. IV. Between 3-4 cubits.	Saj. I. Under 1 cubit.	Saj. II. Between 1-2 cubits.	Saj. III. Between 2-3 cubits.	Area of survey in acres. A. R. P.	Remarks.
1	From the road from Sookna to Mahanuddy east to the Choklong Jhora, 1,640 feet.	20	14	5	.....	1	1	.....	3 3 2	Very poor forest; passes close to the spot where some Teak seedlings were planted out some years ago.
2	Along the road from Mahanuddy to Sookna Bustee, 3,871 feet ...	590	86	30	5	5	2	2	8 3 22	Bad at first, much long grass; improves after crossing Choklong Jhora, and at the end there is some pretty good young sal.
3	Along the road from the end of No. 2 back to old Sookna Haut, 1,230 feet.	54	78	32	3	1	.....	.....	2 3 11	Forest fair, some good well grown young sal trees; grass jungle towards Punchenaie river.
	Total	664	178	67	8	7	3	2	15 1 35	

Contents of forest.

	Sal.	Saj	Total.
Young trees	3,410	101	3,511
Trees	407	.....	407
Old trees	.....	.....	...
Total	3,817	101	3,918

NOTE.—It has been laid down that 10 per cent. of the area of forests under 1,000 acres, and 5 per cent. of those of 1,000 acres and upwards, shall be surveyed. This rule has not been strictly adhered to owing to want of time during the present season. A few additional surveys will have to be made during the next season.

PANKABAREE,
The 1st July 1873.

J. S. GAMBLE, B.A.,
Assistant Conservator of Forests, Sikkim Sub-Division.

APPENDIX E.

No. 82C, dated Gowhatty, the 14th June 1873.

Memorandum on the system of keeping Plantation Records.

As it is desirable to keep an exact record of plantation operations with the view of forming, in course of time, a history of the artificial forests, the following rules have been drawn up for the guidance of the forest officers in charge of plantation work.

2. The information to be recorded should be divided into three classes in the subjoined manner:—

I.—General Description of the Plantation Tract.

For this purpose the area to be planted should be surveyed and examined in detail.

1*st.*—Area of tract in acres.

a.—Area available for planting.

b.—Area unfit for planting, watercourses, roads, &c.

c.—Total area.

2*nd.*—Boundaries, and the properties with which they march.

3*rd.*—Topographical description.

4*th.*—Soil and substratum (geological description).

5*th.*—Climate.

a.—Average rainfall in inches.

b.—Annual mean temperature.

c.—Ditto ditto of the four coldest months, November to February.

d.—Highest temperature.

e.—Lowest temperature.

f.—Prevailing winds.

These data should be obtained from the nearest station where observations are recorded, and it should be stated whether, and in what way, the climate at the plantation tract is likely to differ.

6*th.*—Description of the vegetation as to species; and, if forest, also as to age and condition.

7*th.*—Timber markets in the vicinity; their distance from the plantation tract; kind and estimated amount of material required per year by the surrounding population; sources available to supply these wants; present and prospective price of forest material.

8*th.*—Lines of export, with special information regarding the means of water carriage.

9*th.*—Detailed information regarding the labor available in the vicinity of the plantation tract; also price of labor.

10*th.*—A map of the plantation tract on a scale of 4 inches to the mile exhibiting the topographical features. This map should contain a marginal sketch on a small scale, say 16 miles to the inch, exhibiting the relative position of the plantation tract to the surrounding timber markets; and the lines of export.

II.—General Plan of Operation.

1*st.*—Formation of compartments and blocks. On level or undulating ground the compartments should have the shape of a square, and contain a maximum area of 100 acres each. On hilly ground the shape of the compartment depends on the configuration of the country. Each compartment should be surrounded by a road, as a rule 15 feet broad. This network has to be fixed at once, by laying down two base lines crossing each other at right angles at a fixed point, and the compartments are formed by degrees, as the plantation proceeds, by laying out the roads parallel with the base lines and at equal distances in the plains, or according to the configuration of the surface in the hills. A square with a side of 2,087 feet is equal to 100 acres (as near as required). The unity of management is the compartment; but in plantations of 10,000 acres and over, they should be grouped in blocks, each comprising as a rule a maximum area of 5,000 acres. Blocks should be indicated, in the records as well as in the map, by Roman figures I, II, &c, and, if possible, by names; compartments receive as a rule only Arabic figures 1, 2, 3, &c.

2*nd.*—Area to be planted per year, and succession according to which the several compartments are to be planted.

3*rd.*—Enumeration of trees to be planted, and description of the method to be followed.

4*th.*—Estimated cost per acre during the first five years, arranged according to the following headings:—

a.—Purchase of land.

b.—Working charges.

c.—Establishment.

d.—Total per acre.

III.—Record of Operations.

1*st.*—Detailed register of areas.

As the information of compartments and the actual planting proceeds, the areas must be entered. If it takes more than one year to plant one compartment, sub-compartments must be distinguished by adding the letters *a*, *b*, *c*, &c., to the number of the compartment. This register will ordinarily occupy only one sheet of paper.

2*nd.*—The area planted each year should be entered on the map by a distinguishing wash, namely :—

Plantations of sâl, *shorea robusta*,	by a "green" wash	with an	S	in black.
„ of teak, *tectona grandis*	„	„	T	„
„ of mahogany, *swietenia mahogany*		„	M	„
„ of sisu, *dalbergia sissoo*,	by a "lake"	„	D	„
„ of khair, *acacia catechu*,	„ „	„	A	„
„ of toon, *cedrela toona*,	„ "sienna"	„	C	„
„ of India-rubber trees,	„ „	„	R	„

Mixed plantation of the above by a "sienna" with the respective initials.

Plantations of conifers, by an "indian ink" wash.

„ of temperate trees, by a "cobalt" wash.

3*rd.*—The work done in each compartment has to be recorded on a separate sheet of paper. This sheet receives as its superscription the name of the plantation, name and number of the block, number of compartment and its area. The first entry consists of a concise description of the formation of the plantation, year and month, method followed, and detailed expenditure. Subsequently, every operation performed in the compartment, of whatever description, is entered, whether pruning, thinning, clearing, or any other work. The material removed has to be given in cubic feet, separated according to timber and fuel, as also the cost of removing it and the amounts realized, whether from wood or any other forest produce. In addition, all information of interest concerning the one compartment is entered here. If one sheet is covered, a second and third is attached. The records of the blocks and compartments are arranged according to their number.

4*th.*—Summary of revenue and expenditure for the whole plantation, arranged according to the general budget headings, sub-divided according to circumstances, and in such a manner as to show the cost of the different works.

5*th.*—A record in which all points of importance and of interest concerning the plantation "as a whole" are entered as they occur.

6*th.*—If the plantation is in charge of an officer competent to do so, meteorological observations should be made regarding the following subjects :—

a.—Barometrical pressure.

b.—Rainfall.

c.—Temperature.

d.—Direction of wind.

e.—State of sky, whether cloudy or not.

These observations should be made in accordance with the general directions issued by the Meteorological Department.

3. The information indicated under I and II has to be collected and drawn up before any planting operations are commenced. As soon as it is complete, it should be laid before the Conservator of Forests, who will submit it with his opinion to Government, and obtain sanction to undertake the formation of the plantation, if he considers the conditions favorable.

4. After sanction has been granted, the plantation will be commenced according to the plan laid down under II, or according to such alteration as may be made by Government or the Conservator of Forests, and no deviation from the fixed plan is allowed without the sanction of the Conservator of Forests. The records enumerated under III must then be laid out at once, and the entries made as the work proceeds.

5. The plantation records should not be kept in a book, but in loose sheets in a substantial portfolio of the size of a foolscap sheet. The latter system is preferable, as it allows sheets to be inserted wherever necessary, and at the same time the records are not swelled by blank paper. The several papers and sheets should always be arranged according to the manner indicated above.

6. Divisional forest officers will be held responsible that the records are kept in the proper way, and the Conservator of Forests will examine them whenever an opportunity arises.

7. A copy of the entries in the plantation record during each official year should be appended to the annual administration report of the division.

W. SCHLICH,

Conservator of Forests, Bengal.

No. 348F.-C.

GOVT., N.-W. PROVINCES.

PUBLIC WORKS DEPARTMENT.

FORESTS.

DATED NYNEE TAL, THE 22ND OCTOBER, 1873.

ANNUAL FOREST REPORT FOR THE NORTH-WESTERN PROVINCES FOR 1872-73.

READ :—

Letter from the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce, No. 25-17, dated 4th January, 1873, laying down rules respecting the system of reviewing the annual "Financical Results" of the Forest Department.

This Government reply No. 60 F.-C., dated 7th February, 1873, communicating certain remarks by the Lieutenant-Governor on the system above proposed.

Letter No. 206, dated 18th August, 1873, from the Officiating Conservator of Forests, North-Western Provinces, submitting the Annual Forest Report for 1872-73.

Letter No. 8035, dated 29th August, 1873, from the Officiating Deputy Accountant-General, North-Western Provinces, forwarding the Statements of Revenue and Expenditure, also Annual Abstract Account of cash transactions, received by him from the Conservator's office, and after correction in the Accountant-General's office.

Letter from this Government No. 283F.-C., dated 23rd September, 1873, to the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce, submitting a statement showing a comparison of estimated and actual receipts and charges of the North-Western Provinces' Forests for 1872-73.

OBSERVATIONS.

INTRODUCTORY REMARKS.

THE instructions conveyed in Government of India letter No. 25-17, dated 4th January, 1873, in respect of the preparation, in a revised form, of the annual account of forest revenue and expenditure, have been attended to by the Conservator; but as the totals of receipts and disbursements have been corrected by the Accountant-General, this Government, in now reviewing the financial results, refer of course to the amended figures only.

2. With reference to the letter from this office No. 60F.-C., of the 7th February last, the course therein proposed of comparing the actual receipts and disbursements for three or four successive years has been followed in this Resolution.

GENERAL FINANCIAL RESULTS.

3. The money transactions during the year under report show the following results :—

	Rs.	a.	p.
Receipts	16,42,857	6	9
Expenditure	10,19,011	12	1
Surplus to credit of Imperial Revenue, Rs.	6,23,845	10	8

or as suggested by Government of India letter No. 25-17, dated 4th January, 1873.

		Rs.	a.	p.
Realizations		16,42,857	0	0
Deduct—				
Realized on account of transactions of previous periods		31,286	0	0
Balance		16,11,571	0	0
Add—				
Outstandings on account of the year ...	Rs. 1,78,516			
Minus for bad debts ...	„ 1,961	1,76,555	0	0
Value of the year's transactions ...		17,88,126	0	0
Disbursements		10,19,012	0	0
Deduct—				
Disbursed on account of transactions of former periods		7,770	0	0
Balance		10,11,242	0	0
Add—				
Due for transactions during the year under review not yet disbursed ...		4,352	0	0
Real cost of the transactions of the year		10,15,594	0	0
Value of the year's transactions ...		17,88,126	0	0
Cost ditto ditto ...		10,15,594	0	0
Net result		7,72,532	0	0
Add—				
Difference between value of stock at commencement and close of year ...		18,719	0	0
Real net result of the transactions during the year		7,91,251	0	0

4. Comparing the "Actuals" with the "Regular Estimate" for the year, the account stands as follows :—

	Regular Estimate, 1872-73.	Actuals, 1872-73.	Difference.	
			Increase.	Decrease.
	Rs	Rs.	Rs.	Rs.
Receipts	13,96,590	16,42,857	2,46,267	...
Expenditure	11,16,520	10,19,012	...	97,508
			2,46,267	
			Add 97,508	
Surplus	2,80,070	6,23,845		
			3,43,775	

5. Comparing these figures with the results for the last three years, it will be seen that there has been a marked increase in Forest revenue during the year under report, *viz.*, from Rs. 62,865 to Rs. 6,23,845 :—

	Actuals, 1870-71	Actuals, 1871-72.	Actuals, 1872-73.
	Rs.	Rs.	Rs.
Receipts	3,64,077	10,33,134	16,42,857
Expenditure	6,75,885	9,70,269	10,19,012
Deficit	3,11,808		
Surplus		62,865	6,23,845

6. The figures of the Budget Estimate for 1872-73, compared with the "Actuals," show the following results :—

	Budget Estimate, 1872-73.	Actuals, 1872-73.	Difference.	
			Increase.	Decrease.
	Rs.	Rs.	Rs.	Rs.
Receipts	13,03,000	16,42,857	2,79,857	...
Expenditure	11,11,000	10,19,012	...	91,988
			2,79,857	
			Add 91,988	
Surplus	2,52,000	6,23,845		
			3,71,845	

7. The Lieutenant-Governor considers the financial results of the year under report most satisfactory, and that they exhibit a generally successful administration and management of the forests of these provinces by the Officiating Conservator Mr. Greig and his staff. Sir William Muir, moreover, notices that the increase to revenue is not simply due to an increased supply of sleepers to the State Railway, but also to a greater sale of timber in the log, as well as scantlings, and of minor forest produce ; and this favourable result has been arrived at by facilitating the export of timber from the Forest Depôts, and by greater

attention having been paid to the wants of the timber trade, the necessity of which in a previous Resolution His Honor impressed upon the Conservator.

REVENUE.

8. In five divisions there has been an "increase" of revenue over that provided for in the Regular Estimate, whilst in three others there was a "decrease." In the Bhagerutty, Gurhwal and Kumaon Divisions the "increase" was considerable, *viz.*, Rs. 1,77,414, Rs. 55,101, and Rs. 53,839 respectively; whilst in the Jounsar Division there was a large "decrease" of revenue, aggregating Rs. 41,616.

9. The Conservator reports that the increase in revenue in the Bhagerutty Division is due to Mr. O'Callaghan, the Deputy Conservator in charge, who has delivered a greater number of sleepers to the State Railways than was anticipated. The increases in the Gurhwal and Kumaon Divisions are considered by Mr. Greig to be due to the careful management and improved arrangements for export of timber made by the Officers in charge of these divisions, Mr. Colvin and Captain Campbell respectively. But it is not understood what good is obtained by the recovery of rawannas; the essential thing is to prevent articles crossing the boundaries without a rawanna (paragraph 6 of report); the sending them back must cause delay, and, unless there is any suspicion as to the correctness of the issuing Mohurrirs' accounts, seems unnecessary.

10. The revenue of Raneekhet will, it is hoped, increase; His Honor does not think the expenditure very great when the objects in view are considered, but what there is should not be a charge against the Division, but against the Cantonment (paragraph 9 of report).

11. In the Goruckpore and Rohilkhund Divisions there was also an increase in the collection of revenue—Rs. 2,912 and Rs. 9,111 respectively; these increases are ascribed by the Conservator to the better arrangements for the collection of revenue for minor forest produce, made by Sheikh Mohee-ood-deen, the Officer in charge of the Goruckpore Division, and to the arrears of rent realised by the Rohilkhund Forest Division from the Superintendent of the Roorkee Workshops for the use of the Chandnee Forests. But His Honor is somewhat doubtful of Sheikh Mohee-ood-deen's administrative arrangements.

12. Coming now to the causes which led to a decrease in the collection of revenue in the three Forest Divisions marginally indicated, and aggregating Rs. 52,158, they are ascribed by the Conservator to the following reasons:—

Jounsar	... ...	Rs. 41,616
Dehra Doon	... ...	" 9,767
Jhansie	... ...	" 775
	Total ...	Rs. 52,159

Jounsar.—The decrease is entirely under sub-head I., and was caused by a less number of sleepers having been delivered to the State Railway Officers, in time to be included in the accounts for the year, than was anticipated; but this division will recover its position in the current year, as very large deliveries will have been made. It should have been explained why failure to do what was expected took place, a mere state-

ment of the fact is not all the Government requires. It seems to His Honor that, under the orders of the Government of India, the value of the sleepers which ought to have been delivered in the year ought to have been credited to the year, though His Honor prefers actual transactions being alone credited or debited.

Dehra Doon.—The decrease is owing to a less sale of timber from the depôt, for which, however, no reason is given, as well as of minor forest produce, and to a large portion of the forests having been closed against grazing in the early part of the winter. This is, however, not understood, and should be further explained, as, under the orders of the Lieutenant-Governor, No. 1F.-C., dated 3rd January, greater liberty of grazing was given when His Honor was in the Doon last year.

Jhansie.—The decrease in this division was under IX., "Miscellaneous Receipts," and is due to there having been a smaller demand during the year for grass from the preserves than was usually the case.

13. The following table exhibits the "revenue" by divisions, as compared with that anticipated in the Regular Estimate :—

Divisions.	Regular Estimate, 1872-73.	Actuals, 1872-73.	*Difference.* More.	*Difference.* Less.
	Rs.	Rs.	Rs.	Rs.
Direction	40	58	18	...
Kumaon	2,13,500	2,67,589	53 839	...
Gurhwal	1,53,600	2,08,701	55,101	...
Dehra Doon	1,00,000	90,233	...	9,767
Jounsar	3,65,450	3,23,834	...	41,616
Bhagerutty	5,16,600	6,94,014	1,77,414	...
Goruckpore	26,100	29,042	2,942	...
Rohilkhund	16,590	25,701	9,111	...
Jhansie	4,710	3,935	...	775
Total Rs. ...	13,96,590	16,42,857	2,98,425	52,158
Deduct deficit ...	...	...	52,158	
Surplus ...	...	...	2,46,267	

EXPENDITURE.

14. There has been a saving of Rs. 97,508 on the amount provided for under A. and B. in the Regular Estimate for the year, *viz* :—

Regular Estimate	Rs.	11,16,520
Actual expenditure	,,	10,19,012
Saving ...	Rs.	97,508

and this is distributed over the following divisions :—

Executive Officers.
Survey Division.
Kumaon ,,
Bhagerutty ,,
Jhansie ,,

15. The following table exhibits the actual expenditure by divisions, as compared with the sums provided for in the Regular Estimate :—

Divisions.	Regular Estimate, 1872-73.	Actuals, 1872-73.	*Difference.* More.	*Difference.* Less.	REMARKS.
	Rs.	Rs.	Rs.	Rs.	
Direction	26,376	29,389	3,013	...	
Executive Officers	96,000*	†	...	96,000	*Of these two sums, Rs. 4,625 were transferred to the Survey Division under Captain Bailey, R.E.
Survey Division	6,634*	†	...	6,634	
Kumaon	1,02,154	91,361	...	10,793	
Gurhwal	55,264	61,563	6 299	...	
Dehra Doon	40,476	46,285	5 809		
Jounsar	3,28,484	3,37,766	9,282	...	
Bhagerutty	4,41,015	4,25,4 8	...	15,587	† No expenditure is shown, but it has been divided over the several Forest Divisions.
Goruckpore	10,342	15 883	5,541	...	
Rohilkhund	6 142	8,026	1,884	...	
Jhansie...	3,633	3,311	...	322	
Total ...	11,16,520	10,19,012	31,828	1,29,336	
Deduct ...	...	...	...	31,828	
Saving ...	..	...	...	97,508	

Although there is a total increase of expenditure over last year, the proportion to the revenue is extremely satisfactory.

OUTSTANDINGS.

16. The outstandings have decreased from Rs. 4,41,917 in 1871-72 to Rs. 1,78,516 in the year under report, but of this the outstandings in the Bhagerutty Division is Rs. 1,23,553. The Lieutenant-Governor notices the general reduction with much satisfaction.

Form 23 shows the distribution of "Outstandings" over the several Forest Divisions, and also shows a sum of Rs. 4,352 as due by the Department. The cause of these outstandings is fully explained in paragraphs 57 to 62 of Conservator's report, and His Honor does not consider it necessary further to notice them in detail, except to say that the outstanding in the Bhagerutty Division is much too large.

SLEEPER OPERATIONS.

17. It is noticed that from the Jounsar Division 111,549 sleepers were delivered to the State Railway Officers at Agra and Delhi, whilst from the Bhagerutty Division the numbers aggregated 296,129, or 407,678 sleepers in all during the year. This is less than was anticipated by the Conservator, who estimated the supply in his report for 1871-72 to about 5½ lakhs.

The sleepers from the Bhagerutty Division delivered to the Rajpootana (State) Railway Officers during the year are detailed by the Conservator, and are as follows:—

				Sleepers.
Delhi ...	492	scantlings	10′ × 10″ × 5″ =	738
	170,750	,,	6′ × 8″ × 4″ =	170,750
	25,651	,,	3½′ × 8″ × 4″ =	12,825
Agra	14,104	,,	11′ × 8″ × 4″ =	28,208
	83,308	,,	6′ × 8″ × 4″ =	83,308
	600	,,	3½′ × 8″ × 4″ =	300
			Total ...	296,129

18. 15,022 sâl sleepers, containing 20,418 cubic feet of timber, and prepared in 1871-72 in the Kumaon Division, were floated down the Kosee river to the Ramnuggur Depôt; this was the first attempt to float timber down the Kosee, as it was believed that this river had not sufficient water for the purpose during the cold weather. The Conservator considers that the success of this experiment is due to Captain Campbell, the Officer in charge of the Kumaon Forest Division, whose exertions His Honor has noticed with satisfaction.

23,993 sâl sleepers, containing 31,990 cubic feet of timber, prepared in 1871-72 in the Gurhwal Division, were also delivered at Agra to the Officers of the Rajpootana (State) Railway.

19. Whilst on the subject of sleepers, the Lieutenant-Governor desires to bring to the notice of the Government of India that a large supply of sleepers is likely to be required for the proposed Light Railway from Hattrass Station to Mattra, and that the Superintending Engineer of Light Railways has been accordingly instructed to put himself in communication with the Conservator on the subject. His Honor is of opinion that the easiest source of supply will be by floating down the Jumna to Muttra from the Jounsar Forests. His Honor has already submitted to Government of India the report on the sleeper slides, which proved economical both in time and money.

TIMBER IN STOCK.

20. The value of timber on hand on the 31st March, 1873, is estimated by the Conservator at Rs. 2,87,339, or Rs. 18,720 in excess of that in stock in the previous year. There has been a steady increase, year by year, as is exhibited in the following statement :—

Year under report.	Value of stock in hand.
	Rs.
Close of 1868-69	67,674
" 1869-70	1,60,888
" 1870-71	1,951,62
" 1871-72	2,68,619
" 1872-73	2,87,339

21. There appears to be now a good demand for timber, and at remunerative rates, all over these provinces, both for public and private purposes, and to keep pace with these demands, it is presumed that the stock of timber on hand has been increased.

It has been decided by His Honor to form Timber Depôts experimentally at Cawnpore, Meerut and Moradabad, on the Railways, and also on the Jumna, probably at Calpee and Agra, and the stock of timber on hand will be considerable. Government having taken possession of all the important forests throughout the country from which the people used to derive their timber, it has been thought incumbent on the Forest branch, in justice to the people, and also as a fair source of profit, to provide depôts at convenient localities, to meet the wants of the country.

TIMBER SALES.

22. The Lieutenant-Governor notices with much satisfaction the great improvement that has taken place in the sale of timber during

the year; last year the value of timber sold was only Rs. 74,004, whereas in the year under report the sales have realised nearly treble that amount, or Rs. 2,20,628; and it is hoped that there will be a steady increase under this head and at profitable rates to the Department. Last year His Honor was somewhat dissatisfied with the scanty supply of timber for the regular market and for the wants of the public in the plains; but this year there has been a considerable impetus in the trade, and the arrangements made by the Forest Officers to meet such demands are considered to have been so far satisfactory.

23. In last year's Resolution No. 290F.-C., dated 18th October, 1872, paragraph 10, the Lieutenant-Governor thought "that the demand for timber from the Kumaon Forests would gradually increase as the Railway approaches," and His Honor is glad to perceive from this year's report that this has already been realised, inasmuch as the timber sales in Kumaon have increased from Rs. 16,745 in 1871-72 to Rs. 88,733 in value during 1872-73, or more than five times; and it is believed that there will still be a greater demand in future years, especially when the line of Railway to Ramnuggur is completed.

24. The following table exhibits the value of timber sold during the last five years :—

Year under report.	Value of timber sold.		
	Rs.	a.	p.
1868-69...	4,76,063	0	0
1869-70 ..	1,64,070	0	0
1870-71...	70,031	0	0
1871-72...	74,004	0	0
1872-73...	2,20,628	0	0

25. The sums realised for timber (other than sleepers) have been as follows in the several Forest Divisions :—

Divisions.	Amount.		
	Rs.	a.	p.
Kumaon ...	88,773	4	6
Gurhwal ...	72,454	6	2
Dehra Doon...	25,105	8	4
Jounsar ...	29,413	7	11
Goruckpore...	2,043	8	4
Rohilkhund...	2,837	9	2
Total Rs. ...	2,20,627	12	5

The Conservator should have found out what has become of the case about the sum of Rs. 1,787 due from a contractor (paragraph 58 of his report); it should be enquired into and reported on.

INSPECTIONS.

26. The Conservator's tours of inspection were made with care and efficiency; but His Honor would be more satisfied if the large transactions involved had better supervision at head-quarters.

CONSERVANCY, JUNGLE FIRES, &c.

27. The precautions for the prevention of fires, the Lieutenant-Governor is sorry to observe, were unsuccessful this year, principally in

the Kumaon and Raneekhet Forests, and, as is shown in paragraphs 23 to 31 of Conservator's report, much valuable timber has been destroyed. Last year it was proposed to expend certain sums for fire conservancy,* but this year Mr. Greig shows that the expense would be excessive, and the advantages altogether incommensurate. The course proposed in the 25th paragraph of the report seems the only practicable course, and should be tried and reported on. The period for firing on the principle here stated would depend on the early or late cessation of the rains, but nothing should be done which will prevent an adequate supply of grass to the population in good time.

28. The burning of the Raneekhet Forests by the villagers contiguous or within them, and the consequent loss of much valuable timber and wood fuel to the large military station of Raneekhet, are unfortunate, and the Lieutenant-Governor will be prepared to consider any rules which the Conservator, in communication with the District Authorities, may wish specially to frame for their protection. It is true that the Raneekhet Forests were named 2nd class, and that the Forest Rules lately framed for these provinces, and which have been submitted for the sanction of the Supreme Government, apply to 1st class forests only, in respect to their protection from fire; but His Honor considers that the Raneekhet Forests may be treated exceptionally, and although the villagers have certain rights within the forests, still they cannot be permitted wilfully to destroy them. The Commissioner of Kumaon will be desired, in concert with the Conservator, to devise such remedy as may be possible. But His Honor observes that it would be more in accordance with the object and purport of an Administration Report to discuss such matters separately, and not to swell an already lengthy report with matter extraneous to its object, which is to give a succinct account of the year's operations, not to discuss proposed measures or alterations.

29. The amount of trees used by villagers, as noticed in paragraph 31, does not seem so enormous, as they were of *sizes*, but it should be fully ascertained that the trees are really required for the people's *own* use.

30. In the Dehra Doon and Goruckpore Forests it is observed that good progress has been made in the destruction of forest creepers, and it is hoped that further exertions may be made to get rid of them. The Lieutenant-Governor will be prepared to admit in the forthcoming Budget any reasonable expenditure considered necessary for their removal.

31. The report on the conservancy arrangements of the Jounsar Forests (paragraph 35 of Conservator's report) has been read with interest, and the Lieutenant-Governor would be glad of a more detailed communication in respect to the wilful firing of the Pushrar 1st class forests by villagers of Native States, and of the result of the enquiries that have been instituted. It would be more satisfactory to hear of these things at the time of their occurrence. If the Jubal, Toroche and Gurhwal people really fire them wilfully, they should have been called to

* See para. 16 of Resolution No. 290F.-C., dated 18th October, 1872.

account, though while it is easy to accuse and impute, it is difficult to prove. Fires are no doubt most difficult to deal with, especially as the people believe that thereby the early crops of grass, or food for their cattle, come, and it behoves Government to be very careful in dealing with it, and not only from a Forester's point of view. Any assistance that may be required by the Conservator from Government will be given for the preservation of our outlying forests.

32. The arrangements proposed by Mr. Amery, Deputy Conservator, for preserving the Goruckpore Forests from fires are awaited, and should be submitted at an early date, as the Conservator reports that all the forests were burned during 1872-73.

PLANTATIONS.

33. Mr. Craw's report on Nurseries and Plantations at Raneekhet was forwarded to the Government of India with No. 99F.-C., dated 23rd May, 1873, and need not be here further commented on.

34. The proposals with reference to the cultivation of toon (paragraph 38) are approved, and the planting of Australian gums (paragraph 40) in the plains should be encouraged. No report has been received by this Government on the result of the planting of trees in and about Landour by Colonel Angelo, the Officer Commanding the Landour Depôt; and as Rs. 304-12-6 were paid on this account by the Officer in charge of the Dehra Doon Forest Division, the Government of India in the Military Department will be requested to favour this Government with copy of any report that may have been received from Colonel Angelo on this subject.

35. So far as yet reported, the expenditure incurred for plantations in the Jounsar Forests has proved successful, and the result of the sowings should be reported in next Annual Report. The reports submitted by the Officer in charge of the Jounsar Division are far too discursive and in too great detail for an Annual Report. His Honor concurs with the Conservator in thinking it of no use making plantations in forests, such as the Bhagerutty, leased from foreign States; when, as is reported in paragraph 31 of Conservator's report, the Rajah is unwilling to give up waste lands required for the purpose, it seems best to confine such operations to British territory.

36. The sowings of sâl, and katung bamboo, in the Goruckpore Forests appear to have been successful, and the nurseries are reported as healthy and flourishing. The report on the Jhansie Forest Plantations has been dealt with separately.

MAPS AND BOUNDARIES.

37. A separate Survey Division, under Captain Bailey, R. E., was formed last cold weather and placed under the direct control of the Supreme Government, and any practical results obtained by Mr. Brereton (paragraph 46 of Conservator's report) should be communicated to that officer. This Government has had no report, and, consequently, is in ignorance of the progress of Captain Bailey's operations in the forests of these provinces during the past year.

38. The settlement of the boundaries of the Kumaon Bhabur Forests (paragraph 47) is satisfactory, and it is hoped no delay will take place in their demarcation by pillars; the delay which has taken place in the settlement of the boundary question of the Raneekhet Forests (paragraph 48) is not however satisfactory.

39. The Lieutenant-Governor does not agree with the Conservator in his remarks in the 49th paragraph of his report. It is, in His Honor's opinion, highly important that the native subordinates should be an educated class, and the experiment, though a failure in the case of Mungul Sein, who was not of the class of men this Government wished to see employed, will, if cordially met by Mr. Greig, no doubt be a uc-s cessful one.

40. In respect of the Jounsar Forests, some general notice of what was arranged on several important points on this Division should have been given by Mr. Greig. The most important point settled was the proprietary right of certain khutts to the waste land within their boundaries, and His Honor determined not to refuse this so long as the waste was not out of all proportion to the requirements of a khutt. In respect of wood, however, only such was to be cut down as might be required for domestic purposes ; none was to be sold out of the pergunnah; instructions were also at this time framed for the guidance of the Forest and Public Works Departments in the supply of timber to the Executive Engineers ; other important points were also settled by His Honor at this time which were enumerated in the Secretary to this Department's letter No. 8F.-C., dated 4th January, 1873, to Secretary to Government of India, Department of Agriculture, Revenue and Commerce.

41. The Lieutenant-Governor notices that (excepting Captain Bailey's operations) nothing was done during the year in the preparation of maps and registers of the reserved or State Forests in these provinces. No time should be lost, when once demarcated, in preparing accurate maps and registers of their area, and any reasonable expenditure that may be required for this work should be shown in the forthcoming Budget.

42. There seems a hope of a speedy settlement of boundary lines in the Jounsar and Goruckpore Forests, and the Lieutenant-Governor will await the submission of the record of their positions, which the Conservator states are in course of preparation.

ROADS AND BRIDGES.

43. Five roads were constructed during the year at a cost of Rs. 4,405, *viz.* :—

Forest Division.	Detail of work.	Length in mile.	Cost.
			Rs.
Kumaon ...	Lall Dank to Bursoti	10½	3,000
Jounsar ...	Dhurani to Kailoo	7	830
	Kunjatri to Murwa	1½	55
	Koti and Mangtar	2½	270
	Thona Lani and Koti	3	250
	Total ...	24½	4,405

No bridges were constructed during the year.

BREACHES OF FOREST RULES.

44. Call for no special remarks from Government; on page 37 of Conservator's report, a detailed statement of prosecutions for breaches of Forest Rules, prepared in the Conservator's office, is given, and it is observed that of 236 cases there were convictions in 209, and of 358 persons implicated 303 were convicted, or their cases are still undertrial.

45. The Conservator, in paragraphs 65 to 67 of his report, complains of the drain on the Kumaon Forests by the demands for timber and lime, free of cost, by His Highness the Nawab of Rampore, and that some 20,000 cubic feet of timber, contained in 900 sâl trees, the value of which was estimated at over Rs. 10,000, were removed by the Nawab's servants during the year under his orders. Mr. Greig further states that he is not aware when this concession was first granted to His Highness, as it was handed down by the Commissioner of Kumaon, when the forests were made over to the Department in 1868, and that such concession should be restricted to the Nawab's "own personal actual building requirements," as the forests are not capable of supplying such large demands, in addition to the timber that has to be prepared for the supply of neighbouring markets and the wants of Government for public works. This matter should have been treated separately; it will now be referred to the General Department for such action as may be possible.

GENERAL REMARKS.

46. The Conservator submits a printed report on the Deobun Forests, which, however, does not appear to His Honor to be of a very practical character.

The Deobun Forests are acknowledged to be entirely inaccessible, and so long as the requirements of the Chukrata Cantonments are met, little else is required.

There are many other forests in these provinces where a good working plan might be put into force with greater advantage; and besides, the Lieutenant-Governor* thinks that young officers, although trained and intelligent, must make themselves fully acquainted with conditions of soil and climate before they can put forward a plan (having, as in the present case, for its cycle a hundred years) that could be accepted by the Government as likely to be successful.

In the meantime real progress is to be expected by means of plantations and preserving forests where natural reproduction is going on. Mr. Whittall's report should have been submitted separately, and not with the Annual Report.

47. His Honor observes that Mr. Greig reports that the supply of fuel from the Jounsar Division is not wholly in the hands of the Forest Department, and he would be glad to have an explanation why it is not so.

48. Certain officers are recommended by the Conservator for promotion in the Roll attached to paragraph 88 of his report, but this Roll,

it is noticed, has been prepared on obsolete orders, and on receipt of Government of India orders, in the Agricultural, Revenue and Survey Department, No. 20-1095, dated 19th ultimo, the Conservator was requested to submit a revised Roll for the orders of Government. These recommendations should not be made as a part of the Annual Report, but should have been submitted separately.

His Honor finally considers that Mr. Colvin, in charge of the Gurhwal Division; Mr. Campbell, in charge of Kumaon; Mr. O'Callaghan, in charge of the Bhagerutty Division, and Mr. Bagshawe, in charge of the Jounsar Division, have all earned the commendation of Government for the successful result of their operations during the year, while the Lieutenant-Governor's cordial thanks are due to Mr. Greig for his continued able management of the Department.

The officers whose names Mr. Greig enumerated in connection with the successful working of the timber slides were all brought at the time to the notice of the Government of India.

No. 349F.-C.

ORDER.—Ordered, that a copy of the foregoing, with copy of Conservator's report, be forwarded to the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce, for the information of His Excellency the Viceroy and Governor-General in Council.

Nos. 350-55F.-C.

ORDERED also, that copies be forwarded to the Commissioners marginally noted, as well as to the Accountant-General, North-Western Provinces. The Commissioner of Kumaon's attention is specially directed to paragraphs 23 to 31 of Conservator's report, and to paragraphs 27, 28 and 29 of these orders.

Kumaon. | Benares.
Meerut. | Rohilkhund.
Jhansie.

No. 356F.-C.

ORDERED, that a copy be forwarded to the Conservator of Forests, North-Western Provinces, with reference to his letter No. 206, dated 18th August last, and with special reference to paragraph 31 of this Resolution, with the request that Government may be favoured with a detailed report on the wilful firing of the Pushrar 1st class forests by villagers of Native States.

No. 357F.-C.

ORDERED also, that extract paragraph 34 from this Resolution be forwarded to the Secretary to the Government of India in the Military Department, for the necessary action.

No. 358F.-C.

ORDERED further, that extract paragraphs 65 to 67 from Conservator's report and paragraph 45 of this Resolution be forwarded to the Secretary to this Government in the General Department, for disposal.

ALEX. FRASER, COL., R. E.,

Secretary.

ANNUAL PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

NORTH-WESTERN PROVINCES,

1872-73.

By G. Greig, Esq.,

Offg. Conservator of Forests, N.-W. Provinces.

No. 206, dated the 18th August, 1873.

From—G. Greig, Esq., *Offg. Conservator of Forests,*

To—Secretary to Government, N.-W. P., P. W. D.

Sir,—I have the honour to submit the Annual Forest Report of these Provinces for the year ending 31st March, 1873.

GENERAL SUMMARY.

2. The actual results of the year as regards receipts and expenditure, as compared with the regular estimate, are as follows:—

		1872-73. *Regular Estimate.* Rs.	1872-73. *Actuals.* Rs.	a.	p.
Receipts	...	13,96,590	16,43,057	6	9
Expenditure	...	11,16,520	10,19,012	0	0

Thus, the revenue actually realized during the past year exceeded the regular estimate by Rs. 2,46,467, and the expenditure was less than the regular estimate by Rs. 98,310.

3. Five of the Divisions (besides "Direction") show an increase of revenue over their estimates, *viz.*:—

		Estimate. Rs.	*Actuals.* Rs.	*Surplus.* Rs.
Direction	...	40	58	18
Kumaon	...	2,13,500	2,67,339	53,839
Gurhwal	...	1,53,600	2,08,900	55,300
Bhageruttee	...	5,16,600	6,94,013	1,77,413
Goruckpore	...	26,100	29,041	2,941
Rohilkhund	...	16,590	25,701	9,111

4. The Kumaon and Gurhwal Divisions show very satisfactory results, which are highly creditable to Captain Campbell and Mr. Colvin, the officers in charge; for the increase is under the three sub-heads of the Budget (I., II., VI.,) which

particularly test the capabilities and careful supervision of the Executive Officer, *viz.*:—

	Rs.
Kumaon, Head I., "Sale of timber in depôts," surplus ...	14,000
Gurhwal	29,000
Kumaon, Head II., "Sale of timber removed by purchasers"	30,000
Gurhwal	6,000
Kumaon, Head VI., "Sale of minor forest produce" ...	10,500
Gurhwal	19,500

5. The great increase under head II. of the Kumaon Division is chiefly owing to improved arrangements made by Captain Campbell for export of timber from the open forests of Chorgullia and Hoorai, which are being cleared for cultivation. The principle he observed was to keep up the duty on good timber, but to reduce it on inferior kinds; to lessen the interference of the Chowkee Mohurrirs with the exporters, by taxing all inferior timber by the bullock-load instead of by measurement, thereby saving exporters the trouble and delay of unloading their timber and having it measured at the forest chowkee. Pleased with this arrangement, exporters came to the forests in great numbers, and without any extra expenditure or any waste of timber the revenue has been considerably increased.

6. The large increase under Gurhwal, Sub-head VI., is chiefly due to the excellent arrangements made by Mr. Colvin for recovering the kham tehseel passes (rawannas), and thereby checking all illicit export of timber or minor forest produce. Of 16,945 rawannas issued during the financial year 1872-73, all except 73 were recovered; moreover, several of the 73 were proved to have been burnt or lost, and not to have been passed out without check. Such a large percentage of rawannas has never before been recovered in the Gurhwal Division.

7. The expenditure of the Kumaon Division during the past year was Rs. 91,361, including pay of Executive Officers, against an estimate of Rs. 1,02,151, not including pay of Executive Officers.

8. The expenditure of Gurhwal during the same period was Rs. 61,563, including pay of Executive Officers, against an estimate of Rs. 55,264, not including Executive Officers' pay.

9. The accounts of the Raneekhet Sub-division are included in the Kumaon accounts. The revenue from Raneekhet was Rs. 1,950, and the expenditure Rs. 10,076. This Sub-division cannot pay for some years to come. There is great expense on the nurseries and plantations, and the only sources of revenue are the supply of a few timber trees to the Public Works Department and private parties, and a very small amount of fuel. The revenue will henceforward increase yearly, for the supply of timber from Cantonments is exhausted, and there is not much fuel remaining within Cantonment bounds.

10. The surplus in the Bhageruttee Division is entirely owing to Mr. O'Callaghan (the Deputy Conservator in charge) having delivered more sleepers to the State Railway than was expected.

11. The Goruckpore surplus is chiefly due to the better arrangement made by Mr. Sheikh Mohee-ood-deen for collecting the revenue in minor forest produce from the villagers.

12. The Rohilkhund surplus is on account of arrears of rent of the Chandnee Forest paid by the Roorkee Workshops.

13. Three Divisions show a decrease, *viz.* :—

	Estimate.	*Actuals.*	*Decrease.*
	Rs.	Rs.	Rs.
Dehra Doon... ...	1,00,000	90,233	9,767
Jounsar	3,65,450	3,23,834	41,616
Jhansie	4,710	3,935	775

14. In Dehra Doon, the decrease is under the three Sub-heads I., IV., V. Under I., the actuals are less than the regular estimate by Rs. 5,000, owing to less timber having been sold from depôt than was anticipated. Under IV., the actuals are less than the regular estimate by Rs. 2,500. Head IV., includes two items—(1) minor produce collected on permit fees ; (2) minor produce collected on leases ; (1) the full amount anticipated was realized on the permit fees, but (2) was over-estimated. The decrease under V. is owing to a large portion of the forests having been closed against grazing in the early part of the winter, and also to some of the grazing dues not having been collected in time to be credited to the accounts of the year.

15. The Dehra Doon Division, however, shows a very good balance ; the expenditure of the year was Rs. 46,285, against a revenue of Rs. 90,233.

16. The decrease in Jounsar Division is entirely under Sub-head I., and is owing to a less amount of sleepers having been delivered to the Railway authorities, in time to be credited in the accounts of the year, than was expected. The expenditure of the Division is about Rs. 22,000 less than the regular estimate.

17. In Jhansie, the actual receipts and expenditure were—

	Rs.
Receipts	3,935
Expenditure	3,310
Net balance ...	625
The receipts were less than the regular estimate by ...	775
The expenditure was...	323

18. Compared with the previous year (1871-72), the revenue of the year under review contrasts very favourably—

	Rs.
The revenue for 1871-72 being	10,33,134
Revenue for 1872-73	16,43,057

The following Divisions contribute towards this increase :—

	Rs.
Direction	37
Kumaon	1,57,187
Gurhwal	78,522
Jounsar	1,94,944
Bhageruttee	1,72,089
Goruckpore	1,168
Rohilkhund	13,705
Total increase ...	6,17,652

Deducted from which must be the decrease in the following Divisions :—

	Rs.
Dehra Doon	6,586
Jhansie	1,143
Total decrease ...	7,729

	Rs.
Net increase in favour of the year, as compared with 1871-72 ...	6,09,923

19. The expenditure in 1871-72 was 9,70,270
Ditto in 1872-73 10,19,012
Excess against the year ... 48,742

It is very satisfactory to know that Rs. 1,08,000 of this increase is due to sale of timber and revenue from minor forest produce from the Kumaon and Gurhwal Forests. The revenue in these Divisions is higher than it has ever before been; and this is in a great measure due to the able and zealous manner in which Captain Campbell and Mr. Colvin have managed their respective Divisions. The main part of the increase is on account of many more sleepers having been delivered to the Rajpootana (State) Railway authorities than was expected, which is very creditable to the officers employed on the Jounsar sleeper works, *viz.*, Messrs. Bagshawe, Braidwood, and O. Greig, and to Mr. O'Callaghan, the Deputy Conservator of the Bhageruttee Division. The decrease in the Dehra Doon Division is chiefly owing to the stoppage of all felling of sâl timber, but the receipts of the Division were slightly over-estimated.

The Jhansie decrease is reported to be owing to there having been a less demand for grass than usual.

I.—Inspection.

20. I commenced my inspection tour on the 20th September, 1872, and continued it up to the beginning of April, 1873, when I took three months' privilege leave.

21. During the tour, I visited the Raneekhet Sub-division once; the Bhageruttee Forests once, and the Bhageruttee sleeper works at Hurdwar, &c., four times; the Jounsar Division, including the Sub-divisions of Lambertach, Mundhole, and Chukratta, once, and the Jounsar sleeper works in the Doon twice; the Dehra Doon Division, four times; the Kumaon Division once (stayed for about six weeks), and the Gurhwal Division twice.

22. I had no time to go to Goruckpore, but hope to do so next year.

II.—Conservancy, Jungle fires, &c.

23. In the Kumaon Bhabur Forests arrangements were made to keep fires out of the whole of the area that was protected last year and a considerable tract besides, but the season was particularly unfavourable, as there was hardly any rain from September until May, and the grass and leaves became so dry that when fires broke out it was found impossible to extinguish them; only about one square mile out of the large tract that was preserved last year was saved.

24. By cutting broad roads round these forests, and having a cordon of watchers, fires could be kept out; but considering the extent of the forests and the comparatively small demand of timber required from them, I do not think that Government would ever derive sufficient advantage for such an enormous expense. Next year I propose to protect about four or five square miles, including the one mile which has been saved for the last two years, and not to attempt more; the remainder of the forests to be burnt early in the year, when the grass is only partially dry.

25. I have often talked with the Commissioner of Kumaon about these fires, and he agrees with me that it will be best to burn the forests ourselves. The fire will not do so much damage when the grass is a little green, and if in May or June the fallen leaves catch fire, it will not be such a fierce flame as to kill many of the young trees.

26. The Raneekhet Forests were all burnt this year: there are, of course, small patches here and there that escaped from natural causes, but no one forest or any considerable part of one was saved.

27. The Raneekhet Forests are different altogether from the Bhabur Forests in that the demand for timber will be as great as the supply, *even if the forests are carefully conserved and protected from fire:* if, on the other hand, fires are allowed, there will most certainly be a deficiency of timber and firewood within the next twenty years. The country around Raneekhet is very thickly populated, and the forests

unless properly conserved, are quite inadequate to the annual demands made on them by the inhabitants of the district and the Cantonments.

28. These forests always have been burnt from time immemorial, and consequently the natives have a firm conviction that, unless burnt, there will be a short crop of grass. They think that the grass cannot shoot up through the pine spines. [*N. B.*—Most of these forests are of *Pinus longifolia.*] This is, of course, a most mistaken idea; the grass comes through the pine spines just as readily as it would come through a top dressing of manure. But I allow that burning the old grass does give a crop of new grass about three weeks earlier than if the old crop had not been burnt. And the question is, whether the villagers are to have green grass for their cattle three weeks before the ordinary time, or whether the Government Forests are to be gradually so destroyed that after a given time (say twenty years) there will be an insufficiency of timber and fuel both for the population and the troops. This is merely my own opinion and must be taken only as such, but from what I have observed of the forests near Chukratta which have been worked for fuel, I feel very confident in what I have stated.

29. Should Government consider it advisable to prevent these forests being burnt, it certainly will be a hardship to the villagers as regards the early crop of grass, but eventually it will be for their benefit even in that respect; for, although pine leaves do not decay very rapidly, still they *do decay*, and in four or five years' time there will be a far better show of grass than there ever has been hitherto. The natives won't understand this, and they will grumble a good deal; but if Government wish to have the forests in efficient order, fires must be kept out.

30. His Honor the Lieutenant-Governor will, perhaps, remember that in the code of rules proposed for the North-Western Provinces, the rule for protecting forests from fire only applies to 1st Class Forests. The Raneekhet Forests had to be put in the 2nd Class, owing to the grazing rights and requirements of the villagers; so that, if they are to be properly conserved, a special rule about fires must be made for that Sub-division. It must be a very stringent rule, and the civil officers must *heartily* co-operate with the forest officers in strictly enforcing it. The rule might, perhaps, be made self-acting, the villagers to hold the right of grazing, subject to keeping the forests free from fires, excepting that in case of a fire they could satisfactorily prove that such fire was caused by means beyond their control, and that they extinguished, or tried their utmost to extinguish it.

31. To show the enormous amount of trees used by the villagers, I may here mention that, during 1872-73, 6,986 pine trees of sizes were given (free) from the Raneekhet Forests, and this is exclusive of small timber used for ploughs, cattle sheds, &c.

32. In the Gurhwal Division the arrangements have turned out more successful. The Koria Forest, of 1,273 acres, was again saved, as were also some adjoining forests, comprising about three square miles. A patch of sâl, known as Panialee, containing about 480 acres, was also saved.

33. In Dehra Doon, the two plots in Lucheewala and Boolawala Forests, containing 245 acres, which were preserved from fire last year, were again preserved in 1872-73, and also an adjoining plot of about 61 acres.

34. In the Dehra Doon Division some good work was again done in cutting creepers. In last year's report I stated that 7¾ square miles of the Lucheewala Forest had been cleared of creepers; this year eight square miles to the west of last year's operations have been cleared, at a cost of Rs. 25 per square mile. The result of last year's cutting is very satisfactory. In the portion of forest that was cleared the creepers have not gained any considerable growth, and should henceforth be easily kept down by the patrols without any extra expense.

35. In the Jounsar Division, Mr. Bagshawe's arrangements were again very successful, notwithstanding the great dryness of the season. The 1st Class Forests of (1) Boodyar, (2) Lakao, (3) Totwa, (4) Chijal, (5) Mundhole, were entirely preserved from fire. In the 1st Class Forests of (1) Koti (Mangtar), (2) Konain, (3) Koti Bawur, fires were accidentally lit, but were extinguished by the aid of villagers before any damage was done. The Pushrar 1st Class Forest, which is on the boundaries of the Native States of Jubal and Tiroche, was wilfully fired twice, but the fire was extinguished before any damage was done. It was fired again a third time, *in the night*, but this time the fire was not put out until about four acres of forest had been burnt. Some young deodars were destroyed, but the damage was not very much. Nearly all the 2nd Class Forests were also kept free from fires. One—the Onole Chir Forest—was wilfully burnt. Lines had been burnt at the top and bottom, and also up and down, to divide it into sections. Great care had been taken to preserve it, as felling operations had been carried on in it the previous year, and it was full of young seedlings. The fire has been partially traced to some villagers of the Gurhwal Rajah's territory, but no conclusive case made out against them yet. The logs that remained in the forest from the previous year's felling were all saved, the grass around them having been burnt as a precaution. The officer in charge of the Jounsar Division has not been able to submit the four statements of (1) forests preserved from fire ; (2) area of plantations ; (3) list of reserved forests ; (4) list of unreserved forests, there being no record of areas. The area preserved from fire includes, however, nearly all the forests we wish preserved. In some few 2nd Class Forests, where no damage could be done, permission was given to burn, so that the villagers might obtain an early crop of grass for their flocks and herds.

36. In Goruckpore, Mr. Sheikh Mohee-ood-deen appears to have made no attempt to keep fires out of the forests. They were all burnt, as was the case last year. Mr. Amery, Deputy Conservator, 3rd Grade, who relieved Mr. Sheikh Mohee-ood-deen last May, says that he hopes to make arrangements for preserving the Goruckpore Forests from fire, and I trust that he may, for these jungle fires are the ruin of our forests. Creeper cutting was commenced in the Ramgurh and Soonaree Forests, and I hope to be able to report next year that a considerable area has been cleared of these pests.

III.—Plantations.

37. Mr. Craw's report, which was forwarded with this office No. 108 of the 22nd April, 1873, gave a full account of the nursery and plantation work at Raneekhet.

38. In the Kumaon Bhabur Forests no plantations have been commenced, and, owing to the large extent of forest land in the Division, I don't think much need be done. Last summer, some sâl seed was sown on the sites of some deserted villages : the seed germinated freely, but by the following winter most of the young plants had died. A small nursery was established on the Kosee River at Mohan and some gum trees were planted, but they have not answered well on the whole, for, although some have grown very rapidly, the most of them have been destroyed by white-ants. Toon grows very well in the nursery, and I propose cultivating this useful tree on some suitable spots near the Kosee. The Kumaon tabular form shows the plantations at Raneekhet.

39. In Gurhwal, some toon and khyr seeds have been sown on some carefully selected spots near the Ganges. In next year's report the result shall be given.

40. In Dehra Doon a little gum seed was sown in a nursery, and some sâl seed was sown in Lucheewala Forest, none of which germinated, owing to being sown too late in the season. This year some sâl has been sown at Chor and Juberkhet, both in seed beds and in nurseries. This is quite a trifling work and barely worth mentioning, but the result shall be reported next year.

41. By orders of Government, a sum of Rs. 304-12-6 was paid from the Dehra Doon Division to Colonel Angelo, Commanding at Landour, for planting trees in and about that station. He has, I imagine, reported the result to the Military Department.

42. In Jounsar, sowing has been gone on with on an extensive scale. Very favourable spots were selected in deodar forests that have been over-worked in former years, where stumps or remaining trees show that the trees flourish, and it is to be hoped that the late particularly unfavourable season has not marred our endeavours to any very serious extent. The result of these sowings shall be fully reported in the next year's annual report. For information as to what has been done, I give an extract from the annual report of the Officer in charge of the Jounsar Division :—

"I need scarcely point out that the present time is most inopportune for reporting on the plantations; I shall, therefore, only attempt a general sketch of the work, leaving details until the time of your next inspection tour in Jounsar or the end of the season, when the results will be pretty accurately known. Rs. 5,596-6-0 have been spent on the plantations to 30th June, *i. e.*—

	Rs.	a.	p.
"In 1872-73	4,000	0	0
"In 1873-74	1,596	6	0

"This expenditure was distributed as follows :—

"At Boodyar	682	10	9

Boodyar Plantation.—"Seed sown 52 maunds 10 seers 7 chittacks in nurseries consisting of lines dug 2 feet apart and roughly cleared. About 12½ acres of land were sown thickly in this way. It was proposed, according to thickness of young crops, to transplant into beds from these nursery lines, only leaving enough in the lines to provide the local crops.

Koti Plantation.—"At Koti (Mangtar), Rs. 879-15-0 have been spent; 34 maunds of seed sown in 10½ acres of nursery rills, and some small beds about half an acre in extent, carefully prepared, in which the seed was sown broadcast, with a view to the whole of the plants being bedded out.

Konain Plantation.—"At Konain, the sum of Rs. 1,117-7-6 was spent; 40 maunds 2 seers 6 chittacks of seed were sown in seven acres of line nurseries, and four small nurseries sown broadcast similar to Koti.

Chijal Plantation.—"At Chijal, the sum of Rs. 1,957-9-4 was spent; 41 maunds 5 seers of seed were sown in 214 acres; the seed was sown in rills 2 feet apart, and only in such quantity as it was supposed would ensure a sufficient crop for the local want, and not to give a margin for transplanting; 3 maunds 5 seers were sown in a nursery about half an acre in extent; here the seed was sown broad cast, with a view to transplanting some to beds, &c.

Koti Bawur Plantation.—"At Koti, Rs. 496-1-0 were spent; 5 maunds 5 seers of deodar seeds were sown in lines, similar to the Chijal ones, in about 25 acres; all the bare spots on the hill being sown. Up to April not more than one per cent. of the seed having germinated, and the excessive drought being the supposed cause, sites for two small nurseries about half an acre in extent were selected and four maunds of seed sown. In one of these the seed germinated freely; in the other, not half a per cent. came up.

Experimental Nurseries in Tonse.—"The cost of these is included in the Koti charge; one maund of seed was sown in each nursery in a bed 300 feet square.

"The nursery between Towni and Maindrot was sown in December, and the germination was wonderful. That at Onole on the 6th of May.

Mundhole Plantation.—"At Mundhole, Rs. 389-13-5 were spent; 10 maunds 11 seers of seed being sown in about 11 acres. Here three methods of sowing were adopted:—1*st*, in nurseries with a varying amount of seed; 2*nd*, in nursery lines; 3*rd*, in permanent lines, as at Chijal, &c.; 4*th*, in lines of holes—the lines being three feet apart, and the holes two feet from each other on these lines. The holes were made by a single clod being turned up with a phowrah. Three or more seeds were dropped in each hole; about three acres of nurseries were sown at Mundhole, including nursery lines, the remainder in permanent lines.

Experimental Sowings at Deoban.—"Some experimental sowings of maple, box and chesnut were made at Deoban, at a cost of Rs. 12-13-0. The former has come up freely, and been transplanted out into beds; the box and chesnut failed to germinate: reason unknown.

"It was intended to sow out "moroo" and "ban" (oak acorns) last November, but none were procurable on the spot. And a maund of acorns kindly despatched by Mr. Craw from Ranee khet unfortunately miscarried.

Deoban Oak Plantation.—"The present year has given us a fine crop of acorns from the Kursu oak, which have been planted out in nursery beds and lines and holes. I hope in this way to sow half the bare places on the oak zone of Deoban hill, and plant out largely from the nurseries in the remainder.

General remarks.—"I have before remarked that the present time is inopportune for reviewing the plantation work, and I say so for the following reasons:—The seed germinated in March and April, mainly after the rain in the former month; more seed germinated in May, after some rain we had between 1st and 9th, and it is hoped more seed will yet germinate. The season, as a whole, could not have been more unpropitious than it has been. First we had no winter rains or snow; consequently the spring found the ground comparatively hard and unfavourable to large crops. A fair amount of seed, however, germinated at this time, owing to the March rain. Immediately after this rain we had nearly two months' sunny weather, and a terrible number of young seedlings dried up. Again in May rain fell, which recovered many plants that would otherwise have died, and caused more seed to germinate. After this rain, bedding plants out from nurseries and watering same was commenced; a large number of seedlings were saved in this way from the nursery lines in exposed situations at Konain, &c. This rain was followed by seven weeks of hot weather, and I believe that at least 50 per cent. of the young seedlings die.

"I say this from the appearance of the Chijal and Koti Plantations, and also from having noticed a great number of naturally sown seedlings dried up in Lakao and Konain. The recent rain has again revived hopes for the plantations, and has saved a great many seedlings. Judging by last year, I believe a great many seeds will germinate during the rains.

"Planting out from nurseries (to the position the trees will occupy) and bedding out from same for next year's transplanting is now in progress in Boodyar, Koti, Konain, and Chijal, and will be now commenced in Koti and Mundhole. I propose utilising a good many of the seedlings on the Tonse for Koti, where the lines failed and the nurseries are insufficient.

"From the preceding it will be seen that it is at present impossible to state *results* of the deodar sowings, and that the scanty notes now given are all that can be given with any exactness.

" When all the transplanting is over, the following facts will have to be reported:—(1) area under lines in each forest; (2) area under remains of nursery lines; (3) area in which seedlings transplanted from nursery lines are growing; (4) area under seedlings transplanted from nurseries; (5) area and contents of beds containing seedlings bedded out from nurseries for next year's transplanting; (6) review of different methods of sowing and planting out, and suggestions formed on results of the different modes adopted, the exceptional character of the year being allowed for."

43. *Plantations in Bhageruttee Division.*—The forests in this Division are leased from the Gurhwal Rajah. Last year I contemplated making large plantations near the Bhageruttee River, but the Rajah was unwilling to give the waste lands required for the purpose, so I thought it best to confine our operations to British territory, and the extensive sowings in Jounsar are partly in place of those contemplated for the Bhageruttee.

44. In Goruckpore Division nurseries were formed in each of the different forests. The teak and blue gum seed did not germinate, but the sâl and Katung bamboo came up well, and are reported as looking "healthy and flourishing," in May last, in three of the forests. The remaining nurseries were not visited so late, but, when last seen, are reported—"sâl and Katung bamboos successful." Teak seed sometimes germinates the second year, so there is yet a chance for that sown in July, 1872.

45. The Officer in charge of the Jhansie Forests has mentioned in his return of plantations 75 tracts containing 1,791 acres. These are the plantations mentioned by Major Pearson in his report on the Jhansie Forests, No. 52A., dated 11th April, 1870. He reported that most of the plants were dead, withered, or choked by grass, and that he had stopped all further expenditure on them. They were plantations once, but are not worthy of the name now, and should not be reported as such.

IV.—Maps and Boundaries.

46. During the rainy season, Mr. Brereton, who was in charge of the Survey party, made a valuation survey of most of the principal deodar forests in Jounsar. In November last, the whole of the Survey Sub-Division was handed over to Captain Bailey, R. E., Deputy Conservator, who was appointed to the charge of the General Forest Survey Department and placed under the direct orders of the Government of India.

47. Last February, Colonel Ramsay, Commissioner, and I settled the whole of the boundaries of the Kumaon Bhabur Forests. The Commissioner is to give the Forest Department a statement showing the rights of grazing, &c., of all villages within the forest bounds, and then nothing will remain except to demarcate the boundaries with pillars, and this shall be gone on with as quickly as possible.

48. The demarcation of the Ranookhet Forests is being carried on. Mr. Pengelly, the Officer in charge of the Sub-division, who takes great interest in his work, is now out in camp, in spite of the rains, putting up pillars on all boundaries, about which there can be no doubt. After he has gone round all the forests in this way, the Commissioner will depute one of his officers to go round with Mr. Pengelly to settle such doubtful boundaries as are interrupted by cultivation. In March last, Mr. Beckett, the Kumaon Settlement Officer, went round the forests with the forest officer and pointed out where the boundaries were to go in a *general way.* Mr. Pengelly is now doing the *details.*

49. In Dehra Doon, seventeen miles of boundary lines, on which the undergrowth had come up very thick, were cleared, at a cost of Rs. 8 per mile; 102 pucca boundary pillars were erected in the Eastern Saharunpore District, at a little under Rs. 7 each. This price is no doubt too high, and the work would have been done cheaper had the native in charge been an honest man. Mungul Sein, the man in charge of the works,

was sent to the Forest Department in March, 1872, from the Roorkee College. He bore a good character for honesty, and was the second-best paid native in the Dehra Division. The Deputy Conservator of Dehra Forests put him in charge of the "boundary pillar" work, and gave him advances of money amounting to Rs. 925 in all, and spread over a space of about six months. In June last, suspecting that all was not as it should be, the Deputy Conservator ordered an examination of Mungul Sein's accounts. While the examination was going on Mungul Sein absconded, and up to date the Police have failed to catch him. I would here remark how much better it is for the interests of Government to always let Executive Forest Officers select their own subordinates, than to force men on them who, perhaps, have no qualifications whatever for the work required of them. Concerning these 102 boundary pillars, there is no doubt that the line on which they were erected was peculiarly unfavourable to cheap work, owing to the distance from which stones, water and lime had to be carried ; but still I feel confident that had the work been done by a man who had the interest of Government at heart, they would have been built at some 8 annas (each) less.

50. In Jounsar the settlement of the forest boundaries has been quite finished, and all that remains to be done is, 1*st*, to complete the demarcation pillars; 2*nd*, to draw up a record of their positions. The latter is in course of preparation. The former will not be entirely completed before the end of the current year, as the erected pillars require to be checked, and the recently decided ones have to be built. The Officer in charge of the Division thinks that it will take him three months to visit them all.

51. Of the boundaries of the Goruckpore Forests, Mr. Sheikh Mohee-ood-deen, the late Assistant Conservator in charge, writes as follows :—

"As per order of the Conservator, and agreeably with the directions of the District Officer, the boundary lines of the undermentioned forests have been temporarily cut :—

"(1) Ramgurh, (2) Tilkonia, (3) Beelumpore, (4) Baree Baisee, (5) Baree Bubbum, (6) East Lehra, (7) West Lehra.

"After cutting the lines, I generally used to write a roobkar to the District Officer to help me to settle any boundary disputes of grantees and zemindars. The line-cutting operations were mostly performed when Mr. Webster held charge of the district, and all disputes arising therefrom have probably been settled by him. I think there are but few boundary disputes which require inspection and order of the District Officer still remaining."

V.—Roads and Bridges.

52. The following is a list of the new roads constructed during the past year :—

1.	Lall Dank to Bursoti	... Kumaon Division.
2.	Dhurani to Kailoo	Jounsar Division.
3.	Kunjatri and Maruwa	Jounsar Division.
4.	Koti and Mangtar	Jounsar Division.
5.	Thona Lani and Koti	Jounsar Division.

There were no new bridges constructed.

53. The Lall Dank and Bursoti Road connects the Sub-Sewalik Road (at Lall Dank) with the inner or Patloe Doon Road (at Bursoti), and opens out the intermediate forests. It leads through low hills clothed chiefly with sâl forests and some fine bamboo jungles, and is a most useful line for export of all forest produce north and south of Bursoti. The length of the road is 10½ miles, and it cost Rs. 3,000.

Carts have gone right through during the past season, but it requires widening in some places, and this will be done next winter. Before this road was made, all produce

from forests around and north of Bursoti had to go round by Baxar, a distance of twenty-four miles, before meeting the Sub-Sewalik road.

54. The four new roads made in the Jounsar Division are useful, but inexpensive little roads of 3 and 4 feet breadth, for opening out the forests and carrying out timber and firewood. They are all made passable for a hill pony.

No. 1 is 4 feet broad and 7 miles in length: it cost Rs. 830.

No. 2 is 3 feet broad and 1½ miles in length: it cost Rs. 55.

No. 3 is 4 feet wide and 2½ miles in length: it cost Rs. 270.

No. 4 was formerly a path of 3 feet in width, it has now been made into a road 6 feet wide. The length is three miles, and the cost of widening was Rs. 250.

These should hardly be classed as roads: they are merely a part of a system of cheap and useful paths to connect different forests with the main road from Chukratta (*viâ* Deoban) to the Tonse. And this system will be carried on year by year as fresh forests are commenced to be worked.

VI.—Timber Operations.

55. The principal timber operations of the past year are as follows:—

KUMAON DIVISION.

1*st.* (*a.*)—Carting of sâl logs cut in 1869-70.

(*b.*)—Carting of sâl sleepers and kurries prepared in 1871-72.

(*c.*)—Preparation and carting of sâl kurries.

GURHWAL DIVISION.

2*nd.* (*a.*)—Preparation and carting of sâl kurries.

(*b.*)—Preparation and delivery of sâl and other kinds of timber to the Northern Division of the Ganges Canal.

(*c.*)—Preparation and delivery of bâkli (*Conocarpus latifolia*) logs to the Postal Workshops at Allygurh.

(*d.*)—Felling, logging and barking 100 logs of sain (*Pentaptera tomentosa*).

(*e.*)—Preparation and delivery of sâl scantlings of various sizes for the Rajpootana (State) Railway.

(*f.*)—Preparation and delivery of sâl scantlings for the Public Works Department (Military Branch), Saharunpore.

(*g.*)—150 sâl logs delivered to the Executive Engineer of the Northern Division, Ganges Canal, at Miapore.

(*h.*)—40 sâl logs delivered to Messrs. Glover and Co., Railway Contractors, at Asufgurh.

(*i.*)—7 sâl logs delivered at Asufgurh for the Executive Engineer of the Agra Canal at Dehli.

(*j.*)—Delivery at Agra to the Superintending Engineer of the Rajpootana (State) Railway of 23,993 sâl sleepers, containing 31,990 cubic feet, which were prepared in 1871-72.

DEHRA DOON DIVISION.

3*rd.* (*a.*)—8,040 sain (*Pentaptera tomentosa*) kurries were prepared, carted to depôt, and sold.

(*b.*)—From the remnants of last year's sawing in the Luchoewala Forest, 29,640 kurries and 11,860 tors (poles) of different sorts of timber were prepared and carted to a forest depôt.

(*c.*)—Supply of timber to the Irrigation Department.

JOUNSAR DIVISION.

4*th.* (*a.*)—Supply of timber to Chukratta for the Public Works Department (Military Branch).

(*b.*)—Fuel supply for Chukratta.

(*c.*)—Sleeper operations on the Tonse.

(*d.*)—Jounsar timber operations on the Jumna.

BHAGERUTTEE DIVISION.

5*th.* (*a.*)—Bhageruttee sleeper works.

GORUCKPORE DIVISION.

6*th.* (*a.*)—Goruckpore timber operations.

KUMAON DIVISION.

1*st.* (*a.*)—During the year, 555 sâl logs, containing 30,036 cubic feet, were carted from the "Doorga Deh" Forest to the "Mohan" Forest Depôt, a distance of about eight miles along a hilly road; 1,145 sâl logs, containing 60,924 cubic feet, were carted from "Mohan" to the "Ramnuggur" Depôt, a distance of twelve miles.

(*b*).—40,153 sleepers and kurries, containing 65,915 cubic feet, that were prepared and brought to the "Mohan" Forest Depôt in 1871-72, were brought to the Ramnuggur Depôt. More than half of this lot were floated the whole way to Ramnuggur on the Kosee river, and about two-thirds of the remainder were floated half the distance (six miles), and then had to be carted, on account of the small amount of water in the river. Hitherto carts have always been used for the expor tof sâl timber from the forests in the Gurhwal and Kumaon Divisions. This is the first attempt that has been made to float it, for it has always been thought that neither the Kosee nor Ramgunga rivers contained sufficient water for the purpose during the cold season. The credit is entirely due to Captain Campbell, the Officer in charge of the Kumaon Division, who deserves great praise for having so successfully managed the work. The following is an extract from that officer's annual report on the subject:—

"Floating sâl timber has been tried for the first time in this Division this season. The work being new, no contractors could at first be obtained, so it had to be commenced by daily labour; but as soon as it was shown to be practicable, contractors were forthcoming, and for a time the work went on well; but afterwards the water in the Kosee river became unusually low, and it was necessary to cart some of the timber a part of the way. A great deal of the timber (about 80 per cent. I think) was found to float. The 1st Class or perfectly square timber, which contains most heart wood, naturally floated less than the 2nd Class, which usually contains some sap wood. Some experiments were made of floating the timber that sunk, and it was shown to be quite possible; but, on the whole, it would be better, I think, in future to cart all the 1st Class timber, and such of the 2nd Class as will not float, which would probably only be a very small proportion. The chief difficulties in floating were—1*st*, the large stones in the bed of the river in some places, on which the timber was apt to lodge and get jammed together; 2*nd*, the deep pools in which the timber that did not float well was apt to lodge. These difficulties were met in most places by making side channels and canals, and the two principal canals made would be available again another year at a very little cost. All the timber floated was cut the season before. Timber fresh cut would not, I believe, float so well, and sâl is so valuable that when there is a chance of an early sale for it, it would not be well, I think, to

delay sending it (by carts) to depôt, in order to float it the following season. I have, therefore, been carting to depôt the timber cut this season, commencing with the 1st Class, and I hear that about 25,000 kurries have been carted to Ramnuggur, and it is probable that about this amount will remain up the Kosee till next season; as carting must now soon stop, so it will be possible next season to repeat the experiment of floating timber, and probably under more favourable circumstances and at less expense than during the past season, as experience has been acquired and the contractors are now acquainted with the work, and the canals constructed this season will be available, with a little labour only in clearing them out. The cost of carting is 1¾ pie per cubic foot per mile, and the latest contract for floating was 1¼—a saving on the carting rates of nearly one-third, and floating then was very difficult, as the water was very low indeed, and most of the timber had to be dragged along with ropes in many places. For the first contract 1½ pie was given, but this included the making canals, bunds, &c. If it is considered advisable to continue the floating next season, November and December would be the best months I think, as then the river is always pretty full."

(*c.*)—50,203 sâl kurries were prepared in 1872-73, containing 78,820 cubic feet; of these, 25,729 pieces were carted to the Ramnuggur Depôt. The yield of the Kumaon Forests in 1872-73 has been—

	Cubic feet.
Sâl timber prepared as kurries by Government agency	78,820
Removed by the Nawab of Rampore free of duty	20,535
Estimated quantity of timber of various kinds (but chiefly sâl) exported under kham tehseel rules	443,357

Sales of timber at the Ramnuggur Depôt have been much more extensive this year than last: 1,096 logs were sold during the financial year, and 313 since the commencement of 1873-74. An auction was held at Ramnuggur in March last, and all the inferior logs were sold at an average price of one rupee per cubic foot. The logs now in depôt are a very fine lot and will sell readily; most of the sâl kurries prepared in 1871-72 were sold during the year 1872-73. The 15-feet kurries did not sell so readily as the shorter lengths, and therefore very few of that size were prepared during 1872-73.

GURHWAL DIVISION.

2nd (*a.*)—In the Gurhwal Forests, 42,827 sâl kurries were prepared, of 15, 12, 10, and 8 feet lengths; of these, 28,637 were carted to the regular depôt at Sunnaie, and the remainder will be depôted next winter.

(*b.*)—30,066 pieces (bullahs, bullies, and tors) of timber were delivered to the Northern Division of the Ganges Canal, for use in the Canal head-works, &c.; of these, 10,066 were of sâl (*Shorea robusta*), 9,000 of sissoo (*Dalbergia sissoo*), and 11,000 of inferior kinds of wood.

(*c.*)—Twenty logs of bakli, containing 741 cubic feet, were prepared and rafted down the Ganges Canal to "Baroutha," and there made over to the Superintendent of the Allyghur Postal Workshops, for construction of mail carts, I believe.

(*d.*)—100 sain logs, containing about 3,000 cubic feet, were felled, logged, and barked. They will be depôted on the Ganges next winter.

(*e.*)—From sâl logs in the Sunnaie Depôt, 3,891 scantlings, containing 5,175 cubic feet, were prepared and delivered to the Rajpootana (State) Railway authorities at Delhi.

(*f.*)—From sâl logs in the unsnaie Depôt, 4,231 cubic feet of scantlings were prepared and delivered to the Executive Engineer of the Public Works Department (Military) at Saharunpore.

(*g.*)—From the Sunnaie Depôt, 150 sâl logs, containing 5,956 cubic feet, were delivered to the Executive Engineer in charge of the Northern Division, Ganges Canal, at Miarpore.

(*h.*)—From the Sunnaie Depôt, 40 sâl logs, containing 2,078 cubic feet, were delivered at Asufgurh (on the Ganges) to Messrs. Glover and Co., Government Railway Contractors at Agra.

(*i.*)— From the Sunnaie Depôt, 7 sâl logs, containing 329 cubic feet, were delivered at Asufgurh to the Executive Engineer of the Agra Canal at Delhi.

(*j.*)—These sâl sleepers had been prepared, depôted and accepted the previous year. The Forest Department arranged for their delivery at Agra to oblige the Superintending Engineer of the Rajpootana (State) Railway.

The above details will show that Mr. Colvin has done a very good year's work in preparation and delivering of timber: and besides the above, Rs. 26,248-2-6 were received, under sub-head II. of the Budget receipts, for dry timber removed by exporters under the kham tehseel rules. Nearly all the sâl logs in the Sunnaie Depôt have been sold. In the Budget estimate for 1874-75, I shall ask for money to open out a new forest, as we should always have a few logs in depôt, sufficient to meet pressing demands.

Dehra Doon Division.

3rd. (*a.*)—It having been determined to cut no more sâl timber in the Dehra Forests for the next few years, 8,040 sain kurries were prepared in the Teersal Forest. These were brought to depôt and sold to a Meerut merchant at once.

(*b.*)—This was a very good piece of work; had the remnants of last year's sawing in the Lucheewala Forest not been utilised, most of the wood would have been destroyed by the annual fires. The timber is not, of course, first rate, but it is selling at remunerative rates, and is quite good enough for small native buildings.

(*c.*)—The Northern Division of the Ganges Canal took Rs. 11,591 worth of timber, most of which was sâl. As we cannot supply them with any more sâl from the Dehra Forests, they may perhaps require an increased amount of inferior timber in future.

The Eastern Jumna Canal authorities took Rs. 525 worth of wood for their works.

The Executive Engineer of the Chukratta Road took Rs. 3,066 worth of wood and fuel.

Some wood has also been supplied to the Executive Engineers in charge of the Public Works of Dehra, Saharunpore, and the Doon Canals.

Under sub-head II., "Timber removed by purchasers," the Budget estimate for the year was Rs. 46,000. The Divisional Statement shows that Rs. 46,203-9-7 have been received, and this is satisfactory.

Jounsar Division.

4th. (*a.*)—27,714 pieces of timber were supplied to the Public Works Department or otherwise disposed of in Chukratta during the year. There are still 38,115 pieces in the Chukratta Depôt. All indents are supplied, as far as possible, from the depôt, and only those sized scantlings which are not in hand are prepared in the forests; 6,689 pieces had to be prepared during the year.

(*b.*)—The supply of fuel is a new work. I hope that, in time, it may come entirely into the hands of the Forest Department, at present it is only partially so.

During the year 30,000 maunds have been sawn into two-feet lengths and carried about a mile to a forest depôt for the Commissariat Department, and made over

in stacks. This is a good arrangement, for it does away with the weighing at the Chukratta Depôt, which is open to irregularities; 3,000 maunds were sawn into lengths and delivered in the Commissariat yard.

8,000 maunds were sawn and delivered in Chukratta for the use of the residents.

26,000 maunds were prepared and collected into forest depôts for the Public Works Department lime and charcoal works.

20,000 maunds are cut and stacked for future requirements.

(*c.*)—8,058 deodar logs from the Dartmir Forest were floated down the Tonse and caught on the banks of the Jumna in the Dehra Doon. These yielded 31,192 good sleepers.

176,061 deodar sleepers were launched on the Tonse from the forests of Mundhole and Lambertach, of which 174,000 have been secured in the Doon.

During the past year, 111,549 sleepers have been delivered to the Railway authorities at Agra and Delhi. The remainder are stacked in the Doon, and will be floated down the main channel of the Jumna in August, 1873, thus saving canal dues.

(*d.*)—10,200 chir (*Pinus longifolia*) logs, of lengths varying from 12 to 24 feet, were launched on the Tonse from a forest above Maindrot; of these, 8,098 were secured in the Doon; 4,603 of them were sold during the year, 3,929 of which were converted into 10′ × 10″ × 5″ sleepers for the Sirhind Canal. The unsold logs are collected in four depôts on the banks of the Jumna.

27,610 maunds of refuse sleeper slabs and drift wood were mixed up with 34,500 maunds of dry and green fuel collected in the Dehra Forests, and sold to the Western Jumna Canal authorities for use in the Canal head-works. A full report was sent last month of the sleeper slides and tramways in the Mundhole Forest; a further report of the Lambertach Forest tramway and slide shall be submitted as soon as possible. The Lambertach slide is on a very steep incline, and did not work properly until numerous trials and experiments were made; at last it was determined to cut down the sides to within two inches of the thickness of a sleeper and board in the top. This succeeded admirably, and the slide has proved a great success. The Jounsar sleeper works will be finished during the current year, and then I will submit a statement showing the financial results of the whole transaction from the commencement.

These works were commenced under great difficulties, owing to the absence of roads, the scarcity of labour, the difficulty of getting grain for the workmen, &c., &c.; they have been most successfully carried out, notwithstanding the difficulties, and I cannot speak too highly of the excellent services of Messrs. Bagshawe, Braidwood, and O. Greig, the officers employed on them.

BHAGERUTTEE DIVISION.

5th. (*a.*)—The Bhagerutteo sleeper works have been, as usual, very well managed by Mr. O'Callaghan.

The following is a list of the deo lar sleepers he has delivered to the Rajpootana (State) Railway authorities during the past year :—

						Sleepers.
Delhi,	170,750	scantlings,	6′ × 8″ × 4″	...	...	= 170,750
„	25,651	„	3½′ × 8″ × 4″	...	...	= 12,825
„	492	„	10′ × 10″ × 5″	...	...	= 738
Agra,	83,308	„	6′ × 8″ × 4″	...	...	= 83,308
„	14,104	„	11′ × 8″ × 4″	...	...	= 28,208
„	600	„	3½′ × 8″ × 4″	...	...	= 300
				Total	...	296,129

No deodar trees were cut during the year. The remainder of the logs in the river (about 20,000) will, it is expected, be nearly all brought to depôt during the current year.

No trees were felled in the Bhageruttee Forests, except 96 chil *(Pinus excelsa)*, which were sold to Mr. F. Wilson.

6th. (*a.*)—2,000 sâl and 1,000 sain logs and poles were cut and floated to Dinapore, Patna, and Chuprah, as an experiment to feed the market. The result of the sale is not yet known. Rs. 12,400 were received during the year for timber removed by purchasers ; this was chiefly used by the natives of the district.

VII.—Financial Results.

56. This subject has been fully treated of in detail at the commencement of the report, with the exception of the outstanding balances. At the commencement of the year 1872-73 they were Rs. 4,41,916, and at the close of the year, Rs. 1,78,515.

Kumaon Division.

57. The whole of the sum shown as outstandings in this Division is due for timber sold during March, 1873, and will be recovered in due course.

Gurhwal Division.

58. Rs. 1,787 are still due from the sawing contractor mentioned in last year's report The papers connected with the case left the Forest Department many months ago, but the case has not been tried yet.—Why I know not. All the other outstandings of the Division are recoverable.

Dehra Doon Division.

59. All the outstandings of this Division are advances to contractors, and are recoverable on " work done."

Jounsar Division.

60. Rs. 2,680 was due on the 1st April, 1873, for timber supplied in Chukratta to the Executive Engineer and to officers of the 55th Regiment. Since then the greater part has been recovered. Rs. 23,765 belong to the permanent advance account of the Division, and have been (with the exception of Rs. 320 in hand) advanced in various ways, and are recoverable on "work done." The balance, Rs. 164, is advanced to sawyers, and is recoverable.

Bhageruttee Division.

61. Rs. 1,14,000 were advanced to Mr. Wilson on his sleeper contract, and have since been worked off. The remaining Rs. 9,500 are advances to contractors, and are recoverable on " work done."

Goruckpore Division.

62. The outstandings of this Division are composed of sums due on leases for minor forest produce and on sales of timber. Some few lessees may have absconded, but most of the amount is recoverable.

VIII.—General Remarks.

Kumaon Division.

63. In the Kumaon Division there were 134 cases of breach of forest rules, of which only two were of sufficient importance to be handed over to the Civil authorities. The remainder were chiefly petty cases of evasion of the forest dues. The Officer in charge of the Division awarded slight punishments in 125 cases and dismissed the remaining seven, for want of sufficient proof.

64. As mentioned in last year's report, the demand for timber has greatly increased, as has been shown under head V., "Timber Operations." The stock of timber in the Ramnuggur Depôt is quite within bounds now, and as the Gurhwal Depôt at Sunnaie is almost empty as regards sâl logs, and all demands will have to be met from Ramnuggur, I expect that we shall not have many logs left by this time next year.

65. The free grant of 200 cart-loads of sâl timber to the Nawab of Rampore is a great drain upon the Kumaon Forests. He always takes the full amount and uses the largest of carts. This year the average taken was reported as over 100 cubic feet per cart, or a total of 20,000 cubic feet; and for this amount he felled 900 trees. This is an old affair, and I do not know when or why it was first allowed. It was handed down by the Commissioner of Kumaon when he made over the forests in 1868, and I think it would be a good thing if Government were to enquire into the matter; 900 sâl trees per annum is about twice as many as are cut by the Forest Department in the Division during the year. When the grant was first made, sâl timber was not worth more than a quarter of what it is now, and I should very strongly recommend that the amount be considerably reduced. The 20,000 cubic feet of timber taken this year must have been worth, after all expenses for sawing, carting, &c., were paid, at least Rs. 10,000 at a very low estimate, and the 900 trees, *if cut up by the Forest Department*, would have returned a net profit of more than double that sum; for the Nawab's men waste a good deal of wood in conversion.

66. Besides the timber, the Nawab is allowed 200 cart-loads of limestone free of duty. The duty on this lime at the present export rates (*viz.*, 8 annas per buffaloe and 6 annas per bullock), allowing seven bullocks per cart, would be Rs. 525.

67. Perhaps when this grant was made to the Nawab of Rampore, it was merely intended that he should have timber and lime free of duty for *his own actual personal building requirements*. Whatever the intention was, this large amount of timber and limestone is now annually exported from the Government Forests free of duty, and I can hardly think that it was intended to increase the Nawab's income to this extent. The limestone is of very little consequence, for there is plenty of it; but the sâl timber is a very important question, for the forests are not capable of supplying such a large amount annually, in addition to the timber which has to be prepared to supply the neighbouring markets and Government works.

Gurhwal Division.

68. There were only 17 petty cases for breach of forest rules during the year, and one pending from the previous year; 19 persons were concerned in these 18 cases; one case was dismissed, and 17 convictions were obtained, which included 18 persons.

69. The timber demand has so increased that the sâl logs in the Sunnaie Depôt have been almost all sold off.

70. In both Kumaon and Gurhwal Divisions certain portions of the forests were opened for export of dry wood, but not more at one time than could be properly supervised, and by April most of the blocks were closed, as it is chiefly during the hot season that the forests are damaged by these wood-cutters.

Dehra Doon Division.

71. Thirty cases of breach of forest rules were disposed of during the year; 24 convictions were obtained, five were dismissed, and one is still pending. The leasing of minor forest produce did not succeed quite so well as was expected; the supposed reason is that some of the lessees had rather a bad bargain the previous year, and their losses made others more cautious. The system will, however, be persevered with, and I hope for better success next year.

72. The long-standing boundary questions of Hope Town, Attic Farm, and the Jumna Islands were settled during the year. Mrs. Raynor's, Mrs. Dick's, and the Jogeeala case are still before Government, and there are also a few minor cases which require the orders of the District Officer before they can be settled.

73. Mr. Brereton, the Officer in charge of the Division, was in very bad health last winter, but, with the exception of one month's leave which the Doctor advised him to take, he stuck to his work all the year. He reports very favourably of Mr. Sheikh Mohee-ood-deen, the Assistant Conservator, who was sent from Goruckpore in Mr. Gough's place, and is also fairly satisfied with Mr. Down, his other Assistant.

JOUNSAR DIVISION.

74. There were 35 cases of breach of forest rules, involving 64 men: 27 convictions (including 49 men) were obtained and the remainder dismissed.

75. Mr. Bagshawe, the Officer in charge of the Division, speaks very highly of Messrs. Winton and Braidwood, who are the contractors for rafting and floating the Jounsar sleepers from the Doon to Agra and Delhi: they have done the work exceedingly well, and are very obliging and most careful to carry out instructions.

76. The following are the Executive Officers of the Jounsar Division:—Mr. Bagshawe, Assistant Conservator, 2nd Grade, in charge of the Division; Mr. Braidwood, Assistant Conservator, 3rd Grade; Mr. O. Greig, Sub-Assistant Conservator; Mr. Whittall, Trained Assistant Conservator, 3rd Grade; and Mr. Palmer, Sub-Assistant Conservator.

77. To the three first is mainly due the credit of the success of the Jounsar sleeper works. In a report on the Mundhole Canal slide, tramway, &c, submitted a short time ago, I strongly recommended these three officers for special promotion, and I hope my recommendation has been approved of by His Honor the Lieutenant-Governor.

78. In the last Annual Report I remarked that Mr Whittall seemed a very promising officer: I am glad to be enabled to say that his work during the past year fully supports the opinion I then formed of him. He is an excellent Forest Officer and has managed the Deoban Sub-division remarkably well.

79. Mr. Bagshawe writes of Mr. Palmer as follows:—" He has been carrying on the sawing work in the Doon in a satisfactory way during a very trying season, and I believe he will prove a good Forest Officer."

BHAGERUTTEE DIVISION.

80. There were five cases in this Division which had to be brought into Court: three of them were for stealing Government timber from the banks of the Ganges, and one for attempting to bribe a forest subordinate. Convictions were obtained in all. The fifth is before the Teree Rajah's Court: it is a case against some of his subjects for cutting up and appropriating some yew timber which had been felled by Government.

81. Mr. O'Callaghan, the Deputy Conservator of the Division, held charge throughout the year. The large amount of sleepers delivered to the Railway authorities during the past and previous years show what a thoroughly good officer he is.

GORUCKPORE DIVISION.

82. There were four cases of theft of timber which were taken before a Magistrate, involving 9 men. In the first case, one man was fined Rs. 50 and the other two acquitted; in the second and third cases all three men were acquitted. In the fourth case, all of the three men were convicted and fined Rs. 10, 2, and 3, respectively.

83. Mr. Sheikh Mohee-ood-deen held charge of the Goruckpore Division throughout the year 1872-73. Since then he has been transferred as an Assistant to Mr. Brereton in the Dehra Doon, and Mr. Amery (Deputy Conservator, transferred from the Punjab) has charge of Goruckpore.

General.

84. There were four cases for breach of forest rules in the Jhansie Division, involving 11 persons. Four convictions were obtained, including four persons.

85. No breaches of forest rules have been reported in the Rohilkhund Division.

* Since writing this paragraph it has been ascertained that there were six cases, involving 20 persons, in Bijnour, convictions being obtained in four cases, including 15 persons.

86. A report on the Deoban Forests, Jounsar Division, by Mr. R. Whittall, Trained Assistant Conservator, 3rd Grade, is appended. Last winter I spoke to Captain Bailey about surveying these forests, and he hopes to do it before long: he may perhaps commence the work next autumn, between the time of the closing of the rains and the commencement of the healthy season in the Doon. Mr. Whittall's is a very able report, and shows that he takes great interest in his work and has considered the subject very carefully.

87. The report called for in paragraph 9 of Government of India orders on the North-Western Provinces' Annual Forest Report for 1871-72 will be submitted in a few days. Some statistics have been called for from the Jounsar Office and have not yet been received.

88. In accordance with instructions, I beg to append a list of officers recommended for promotion.

Name.	Present grade.	Proposed grade.	Date of first joining the Forest Department.	Date of promotion to present grade.	Remarks.
J. E. O'Callaghan ...	Deputy Conservator, 2nd Grade.	Deputy Conservator, 1st Grade.	8th May, 1864	1st March, 1871,	Has conducted the Bhageruttee sleeper works since the commencement. Mentioned very favourably in the Annual Report for 1871-72; also in paras. 55 and 81 of the report for the past year; very strongly recommended.
A. R. Grant ...	Assistant Conservator, 2nd Grade.	Assistant Conservator, 1st Grade.	10th June, 1867,	2nd Aug., 1870,	Has served three years in present grade.
Captain J. E. Campbell.	Assistant Conservator, 2nd Grade.	Assistant Conservator, 1st Grade.	14th April, 1871,	14th April, 1871,	Was recommended last winter for promotion. Has greatly increased the revenue from Kumaon Forests and done particularly good service (*vide* paras. 5, 19, 55, of Annual Report for 1872-73). He would have been drawing considerably more pay had he remained in the Military Department, and I strongly recommend him for promotion.

Name.	Present grade.	Proposed grade.	Date of first joining the Forest Department.	Date of promotion to present grade.	Remarks.
C. Bagshawe ...	Assistant Conservator, 2nd Grade.	Assistant Conservator, 1st Grade.	October, 1869,	30th Octr, 1871.	The three officers who have been chiefly concerned in the Jounsar sleeper operations mentioned in paras. 19, 35, 55, 76, and 77, of the Annual Report for 1872-73. Mr. Bagshawe joined the Forest from the Botanical Department temporarily in October, 1869, but was only gazetted to the Controlling Staff on 22nd October, 1870. Mr. Braidwood was additional Assistant Conservator from 9th November, 1870. He was brought on the sanctioned strength 22nd May, 1872.
J. M. Braidwood,	Assistant Conservator, 3rd Grade.	Assistant Conservator, 2nd Grade.	9th Novr., 1870,	9th Novr., 1870.	
O. Greig ...	Sub-Assistant Conservator.	Assistant Conservator, 3rd Grade.	1st April, 1871,	1st April, 1871	

89. The Executive Establishment for the North-Western Provinces Forests is as follows:—

Deputy Conservators	3
Assistant or Sub-Assistant Conservators	11

These are at present:—

Deputy Conservator 1st Grade	...	1,	Mr. Colvin.
" " 2nd "	...	1,	Mr. O'Callaghan.
" " 3rd "	...	1,	Mr. Amery.
Assistant " 1st "	...	1,	Mr. Brereton.
" " 2nd "		4	Messrs. Grant, Pengelly, Campbell, and Bagshawe.
Ditto do. 3rd "	...	3	Messrs. Sheikh Mohee-ood-deen, Braidwood, and Whittul.
Sub-Assistant Conservators	...	3	Messrs. O. Greig, Down, and Palmer.

90. According to the Government of India's Resolution No. 4-352, forwarded to Conservator's Office with North-Western Provinces' No. 74F., dated 13th March, 1873, it was ordered (para. 4) that the Government of the North-Western Provinces could not promote beyond the following numbers in each grade:—

Deputy Conservators, 1st Grade	...	...	...	...	1
" " 2nd "	...	...	..	..	1
Assistant " 1st "	..	...	...	...	2
" " 2nd "	...	...	...	...	2

Therefore, of the six officers I have recommended for promotion, His Honor the Lieutenant-Governor has only power to promote one Assistant Conservator to 1st Grade without reference to Government of India. I strongly recommend Mr. Bagshawe to be *the one*, for he, of the three 2nd Grade Assistants, has certainly done the best work. Had Captain Campbell been in the same position he would doubtless have done quite as well, but he had not the same opportunities that Mr. Bagshawe had, although he did all that could be done in his own division.

91. In para. 6 of the abovementioned Resolution it is ruled that " If in any case any of the Local Governments consider it specially necessary to give promotion to any officer for whose promotion they have no vacancy, the matter should be reported to the Government of India, when, if compatible with a due regard for the claims of officers serving in the provinces more directly under the Government of India, an extra promotion may, as a special case, be assigned out of those now rateably reserved for Oudh, British Burmah, the Central Provinces, Mysore, Coorg, Berar and Ajmere."

92. Mr. Braidwood tells me he passed the vernacular examination required by the rules in the beginning of this month (August), but I have not yet received official intimation. All the other officers recommended are qualified for promotion.

I have the honour to be,
SIR,
Your most obedient servant,
G. GREIG,
Officiating Conservator.

No. 15.

FOREST DEPARTMENT, N.-W. P.

Statement of Timber on hand on the 31st March, 1873.

Name of depôt.	Description of timber.	Quantity. No. of pieces.	Quantity. Cubic feet.	Estimated selling rate per 100 cubic feet.	Estimated value.	Total per depôt.
				Rs. a. p.	Rs. a. p.	Rs. a. p.
Ramnuggur (Kumaon Division) ...	Sâl Logs	2,460	114,269′ 3″ 10‴	125 0 0	1,42,836 10 4	
	„ Koloos	17	998′ 3″ 9‴	125 0 0	1,247 14 3	
	„ Sleepers, 1st Class	178	616′ 10″ 0‴	150 0 0	925 4 0	
	„ „ 2nd Class	4	13′ 10″ 8‴	75 0 0	10 6 8	
	„ „ 3rd Class	183	210′ 0″ 0‴	37 8 0	90 0 0	
	„ Kurrees, 1st Class	2,990	9,264′ 7″ 10‴	106 4 0	9,843 11 1	
	„ „ 2nd Class	1,896	5,919′ 8″ 8‴	87 8 0	5,179 12 1	
	„ „ 3rd Class	162	506′ 3″ 0‴	43 12 0	221 7 9	
	Huldoo Planks	3	2′ 9″ 9‴	50 0 0	1 6 6	
	Sein Kurrees, 1st Class	124	305′ 10″ 10‴	62 8 0	191 3 0	
	„ „ 2nd Class	93	188′ 6″ 6‴	43 12 0	82 7 9	
	„ „ 3rd Class	8	19′ 2″ 0‴	31 4 0	5 15 10	
						1,60,636 3 3
Sunnai (Gurhwal Division)	Sâl Logs	189	8,653′ 1″ 10‴	125 0 0	10,816 7 0	
	„ Gaindas	85	1,400′ 6″ 1‴	75 0 0	1,050 6 1	
	„ Sleepers, 2nd Class	685	...	0 15 0 ₩ sleeper.	642 3 0	
	„ Kurrees, 1st Class, 15′×6″×5‴	198	...	80 1 3 ₩ score.	792 12 4	
	„ „ „ 12′×5″×4‴	6.042	...	39 9 4 „	11,958 2 0	
	„ „ „ 10′×5″×4‴	2,801	...	28 10 4 „	4,011 13 5	
	„ „ „ 8′×4″×4‴	2,587	...	17 13 4 „	2,306 11 11	
	„ „ „ 6′×4″×4‴	2,794	...	13 12 0 „	1,920 14 0	
	„ „ 2nd Class, 10′×5″×4‴	80	...	21 7 9 „	85 15 0	
	„ „ „ 8′×4″×4‴	132	...	13 12 0 „	90 12 0	
	„ „ „ 6′×4″×4‴	117	...	10 5 0 „	60 5 3	
	Rejected scantlings of different kinds ...	2,237	...	15 0 0 „	1,677 12 0	
	Butts of logs	479	...	25 0 0 „	598 12 0	
		...	...	...	36,012 14 0	

Simul Chour	Sâl Logs	66	4,348′ 6″ 8‴	125 0 0 ₹ 100 c. ft.	5,435 11 4	
	„ Koloos	12	613′ 5″ 3‴	100 0 0 „	613 6 10	
	„ Planks, 1st Class	301	...	124 0 0 ₹ score.	1,866 3 2	
	„ „ 2nd Class	21	...	31 0 0 „	32 8 9	
		...	...	...	7,947 14 1	
Gouree Ghât	Baklee Logs	20	741′ 8″ 4‴	37 8 0 ₹ 100 c. ft.	278 2 2	
	Sâl Tors	5,120	...	14 6 0 ₹ score.	3,680 0 0	
	„ Bullahs	490	...	19 8 0 „	477 12 0	
	Kokol Tors	4,000	...	10 8 0 „	2,100 0 0	
	„ Bullas	540	...	14 8 0 „	391 8 0	
	„ Bullees	2,540	...	8 6 0 „	1,063 10 0	
		...	...	...	7,991 0 2	51,951 12 3
Doodia (Dehra Doon)	Sâl Kurrees	6,436	11,174·38,228	32 3 4 ₹ score.	10,265 2 6	
	Sein „	1,985	4,146·51,790	27 4 8 „	2,297 7 0	
	Jamun „	297	565·55,777	14 2 0 „	263 13 6	
	Damaged „	82	...	0 2 0 „	8 3 2	
		...	...	...	12,834 10 2	
Luchee Wallah	Sâl Kurrees	98	193·75,050	27 10 5 ₹ score.	140 3 2	
	Sein „	230	511·59,584	15 1 0 „	240 6 4	
	Jamun „	7	11·94,454	10 10 8 „	4 7 2	
	Damaged „	248	...	0 2 0 „	24 12 10	
		...	...	...	409 13 6	
Mokumpore	Sâl Kurrees	9	28·12,455	27 10 0 ₹ score.	18 0 0	
	Sein „	4	6·66,672	15 1 0 „	3 7 2	
	Damaged „	16	...	0 2 0 „	1 9 7	
	Various scantlings	8	...	Since sold for.	45 0 0	
		...	...	...	68 0 9	13,312 8 5

No. 15.—(concluded).

FOREST DEPARTMENT, N.-W. P.

Statement of Timber on hand on the 31st March, 1873.

Name of depôt.	Description of timber.	Quantity. No. of pieces.	Quantity. Cubic feet.	Estimated selling rate per 100 cubic feet.	Estimated value.	Total per depôt.
				Rs. a. p.	Rs. a. p.	Rs. a. p.
Chukrata (Jounsar Division)...	Deodar Kurrees	9.369	10,746′ 9″ 11‴	150 0 0 ₱ 100 c. ft.	16,120 3 10	
	„ Planks	6,778	...	1 8 0 each.	10,167 0 0	
	„ Condemned Planks...	843	...	0 12 0 „	632 4 0	
	Rai Kurrees	4.097	7,595′ 4″ 9‴	100 0 0 ₱ 100 c. ft.	7,595 6 4	
	„ Planks	13,259	...	0 1 0 each.	13,259 0 0	
	„ Condemned Planks	3,591	...	0 6 0 „	1,346 10 0	
	„ „ Kurrees	117	...	0 8 0 „	58 8 0	
	„ Bullees	61	...	3 11 0 „	224 15 0	49,403 15 2
Miapore (Bhagaruthy Division) ...	Deodar Planks	376	410′ 8″ 0‴	34 0 0 ₱ 100 c. ft.	139 10 0	
	„ Kurrees	51	93′ 0″ 0‴	14 0 0 „	13 3 0	
	Cheer Sleepers 6′×8″×4″ (very old and since sold as fuel).	58	77′ 4″ 0‴	6 4 0 „	4 13 4	157 10 4
Maujhi (Goruckpore Division) ...	Asna Logs	678	8,497′ 0″ 0‴	0 4 0 each.	2,712 0 0	
	Sâl Logs	1,656	22,041′ 9″ 0‴	0 5 0 „	8,280 0 0	
	Koorma Logs	60	753′ 7″ 5‴	0 4 0 „	240 0 0	
	Sâl Bullas	442	...	0 8 0 „	221 0 0	11,453 0 0
Jhansie Division	Miscellaneous sorts (Bamboos)	1,529	...	0 2 0 ₱ 100	30 9 3	30 9 3
Bijnour (Rohilkhund)	Sâl Bullees	1,573	...	0 4 0 each.	...	393 4 0
	Total ...	...	...	...	...	2,87,338 14 8

Note regarding Dehra Doon Entries.

The figures in column 5 are the *mean* average selling rates of all sizes of each class. The figures in column 6 shew *actual* rates, and are not obtained by calculations based on the *mean* average selling rate given in column 5.

Dated 18th August, 1873.

G. GREIG,

Offg. Conservator.

No. 21.

FOREST DEPARTMENT, N.-W. P.

Annual Summary of Revenue and Expenditure in the different Divisions during the year 1872-73.

Classification.	Direction.	Kumaon.	Gurhwal.	Dehra Doon.	Jounsar.	Bhagaruthy.	Goruckpore.	Jhansie.	Rohilkhund.	Total.
RECEIPTS.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
I.—Sale of timber at Depôts	...	1,04,398 4 11	91,114 15 4 —200 0 0	25,028 9 10	3,02,614 1 8	6,64,578 11 6	1,535 4 4	...	2,837 9 2	11,92,107 8 9 —200 0 0
II.—Sale of timber removed by purchasers,	...	85,458 5 11	26,248 2 6	46,203 9 7	13,041 14 0	19,609 0 0	12,452 5 7½	1,297 14 2	225 12 0	2,04,536 15 9½
III.—Duty on foreign timber	...	...	...	...	...	...	...	...	...	...
IV.—Permit fees	...	...	...	8,882 5 0	1,068 6 4	6,622 13 10	424 1 6	...	11,500 0 0	28,497 10 8
V.—Grazing dues	...	5,424 9 0	792 14 10	5,831 9 6	255 1 6	...	3,0-0 10 10	2,106 14 1	8,146 1 3	25,637 13 0
VI.—Sale of fruits, &c.	...	70,573 11 5	89,551 15 10	1,917 7 6	108 14 0	...	3,487 11 4½	309 12 0	2,954 13 0	1,68,904 5 1½
VII.—Sale of confiscated timber	...	153 2 8	248 8 0	21 0 0	34 7 0	...	10 0 0	...	...	467 1 8
VIII.—Fines and forfeitures	...	1,113 1 5	37 3 10	350 5 0	342 4 6	203 12 0	29 6 7	...	2 0 0	2,078 1 4
IX.—Miscellaneous	58 7 4	218 3 4	906 12 0	1,998 9 10	6,369 8 1	2,998 13 0	8,021 8 10	221 0 0	35 0 0	20,827 14 5
Total Receipts ...	58 7 4	2,67,339 6 8	2,08,900 8 4 —200 0 0	90,233 8 3	3,23,834 9 1	6,94,013 2 4	29,041 1 1	3,935 8 3	25,701 3 5	16,43,057 6 9 —200 0 0
CONSERVANCY AND WORKING.										
I.—Timber expenses	...	45,062 11 3	23,700 0 0	11,378 2 4	2,77,646 7 6	3,85,474 5 6	5,979 2 3	280 8 11	1,543 5 3	7,51,064 11 0
II.—Purchases of stock and cattle ...	...	243 6 7	209 2 2	812 13 9	1,554 11 0	244 8 0	45 8 0	...	...	3,110 1 6
III.—Feed and keep of cattle	...	1,680 8 10	1,675 3 10	4,141 0 11	556 9 5	128 11 2	445 6 9	...	...	8,627 8 11
IV.—Rent of leased forests	...	...	...	...	2 0 0	10,000 0 0	...	...	...	10,002 0 0
V.—Charges in collecting revenue on grass, &c.	...	9,876 13 11	10,156 0 1	817 12 1	...	...	...	495 8 0	485 3 1	21,831 5 2
VI.—Plantations	...	2,141 13 2	26 10 4	388 1 1	4,000 0 0	678 3 10	712 2 6	44 10 0	...	7,991 8 11
VII.—Forest Work	...	1,278 10 6	641 10 3	1,479 14 0	3,137 2 0	...	30 0 0	419 3 5	...	6,986 8 2
VIII.—Forest Survey	...	154 8 6	...	637 10 6	2,500 5 3	...	180 0 0	...	...	3,472 8 3
IX.—Experiments on timber	...	...	100 0 0	...	544 4 8	29 11 0	...	...	...	673 15 8
X.—Communications and buildings ...	71 12 0	8,657 14 1	7,032 1 6	2,934 6 0	13,890 10 5	15,479 2 5	420 3 5	28 12 3	4,380 0 0	52,894 14 1
Total, Conservancy and Working ...	71 12 0	69,096 6 10	43,540 12 2	22,589 12 8	3,03,832 2 3	4,12,034 9 11	7,812 6 11	1,268 10 7	6,408 8 4	8,66,655 1 8

No. 21.—(concluded).

FOREST DEPARTMENT, N.-W. P.

Annual Summary of Revenue and Expenditure in the different Divisions during the year 1872-73.

Classification.	Direction.	Kumaon.	Gurhwal.	Dehra Doon.	Jounsar.	Bhagaruthy.	Goruckpore.	Jhansie.	Rohilkhund.	Total.
ESTABLISHMENTS.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
I.—Salaries	23,183 11 11	18,253 2 8	15,910 9 4	16,947 7 8	23,286 8 4	10,372 0 0	6,154 0 0	1,997 11 0	1,597 0 0	1,19,722 2 11
II.—Allowances	3,697 6 1	2,396 9 3	1,479 9 8	3,589 2 7	9,436 13 11	2,233 0 0	1,384 5 2	...	...	24,216 14 8
										—36 14 0
III.—Contingencies	2,473 0 5	956 8 2	632 8 1	1,158 11 9	1,210 9 6	768 9 0	532 0 6	44 2 6½	20 2 0	7,796 3 11
Value of stores, &c., supplied by Military Department	—36 14 0	+659 2 11	...	...	...	...	...	...	...	+658 2 11
Total, Establishments ...	29,354 2 5	21,606 4 1	18,022 11 1	23,695 6 0	33,933 15 9	13,393 9 0	8,070 5 8	2,041 13 6	1,617 2 0	1,51,735 5 6
	—36 14 0	+658 2 11								—36 14 0
										+658 2 11
GRAND TOTAL, EXPENDITURE ...	29,425 14 5	90,702 10 11	61,563 7 3	46,285 2 8	3,37,766 2 0	4,25,428 2 11	15,882 12 7	3,310 8 1	8,025 10 4	10,19,011 12 1
	—36 14 0	+658 2 11								

FOREST OFFICE, N.-W. PROVINCES:
Dated Nynee Tal, the 18th August, 1873.

N. B.—This statement has been checked by the Accountant-General.

G. GREIG,
Offg. Conservator.

No. 22.

FOREST DEPARTMENT, N.-W. P.

Annual Abstract Account of the Cash Transactions of the Forest Department in the North-Western Provinces.

Dr.

Year.	Heads of Account.	Rs.	As.	P.
1872-73.	*To Cash balance in hand on 1st April, 1872.*			
	1. Direction Division	364	12	0
	2. Kumaon "	1,724	6	1
	3. Gurhwal "	23,626	12	8
	4. Dehra Doon "	194	6	10
	5. Jounsar "	8,927	3	5
	6. Bhagaruthy "	17,624	6	9
	7. Goruckpore "	2,934	15	7
		55,396	15	4
	To Revenue received during the year.			
	1. Direction Division	58	7	4
	2. Kumaon "	2,67,339	6	8
	3. Gurhwal "	2,08,900	8	4
		—200	0	0
	4. Dehra Doon "	90,233	8	3
	5. Jounsar "	3,23,834	9	1
	6. Bhagaruthy "	6,94,013	2	4
	7. Goruckpore "	29,041	1	1
	8. Jhansie "	3,935	8	3
	9. Rohilkhund "	25,701	3	5
		16,43,057	6	9
		—200	0	0
	To Remittance from State Treasuries.			
	1. Direction Division	29,500	15	0
	2. Kumaon "	1,03,917	12	0
	3. Gurhwal "	60,635	0	0
	4. Dehra Doon "	48,042	10	3
	5. Jounsar "	3,30,000	0	0
	6. Bhagaruthy "	4,24,693	0	0
	7. Goruckpore "	14,062	0	0
	8. Jhansie "	3,310	8	1
	9. Rohilkhund "	9,025	10	4
		10,23,187	7	8
	To Remittances from other Departments.			
	1. Direction Division	36	14	0
	3. Gurhwal "	1	8	0
	5. Jounsar "	1,950	12	5
	7. Goruckpore "	—1	7	0
		45	18	0
		2,034	10	5
		—38	5	0

Cr.

Year.	Heads of Account.	Rs.	As.	P.
1872-73.	*By Expenditure of the Department during the year.*			
	1. Direction Division	29,425	14	5
		—36	14	0
	2. Kumaon "	90,702	10	11
		+658	2	11
	3. Gurhwal "	61,563	7	3
	4. Dehra Doon "	46,285	2	8
	5. Jounsar "	3,37,766	2	0
	6. Bhagaruthy "	4,25,428	2	11
	7. Goruckpore "	15,882	12	7
	8. Jhansie "	3,310	8	1
	9. Rohilkhund "	8,025	10	4
		10,19,011	12	1
	By objectionable items during the year.			
	3. Gurhwal Division	25	0	0
	6. Bhagaruthy " 360+2,29,848-12-0	2,30,208	12	0
	7. Goruckpore "	220	3	5
	9. Rohilkhund " (Bareilly Forest)	1,000	0	0
		2,31,453	15	5
	By Remittances to State Treasuries during the year.			
	1. Direction Division	58	7	4
	2. Kumaon "	2,14,028	0	0
	3. Gurhwal "	1,42,615	14	0
	4. Dehra Doon "	72,765	5	10
	5. Jounsar "	22,433	12	9
	6. Bhagaruthy "	24,826	4	1
	7. Goruckpore "	28,541	7	1
	8. Jhansie "	3,935	8	3
	9. Rohilkhund "	25,701	3	5
		5,34,905	14	9
	By Income Tax paid into Treasuries during the year.			
	2 Kumaon Division	117	4	0
	3. Gurhwal "	119	4	8
	4. Dehra Doon "	123	10	6
	6. Bhagaruthy "	87	0	0
	7. Goruckpore "	30	12	0
		477	15	2

No. 22.—(concluded).

FOREST DEPARTMENT, N.-W. P.

Dr. *Annual Abstract Account of the Cash Transactions of the Forest Department in the North-Western Provinces.*—(continued). Cr.

Year.	Heads of Account.	Rs.	A.	P.
1872-73.	*To Income Tax Assessments during the year.*			
	1. Direction Division	217	2	0
	2. Kumaon „	117	4	0
	3. Gurhwal „	119	4	8
	4. Dehra Doon „	129	6	6
	5. Jounsar „	221	8	0
	6. Bhagaruthy „	87	0	0
	7. Goruckpore „	30	12	0
		922	5	2
	To Fund deductions during the year.			
	1. Kumaon Division (Government of India)	...		
	Military Rs. 107-13-1	...		
	Orphan „ 20-2-10	227	15	11
	4. Dehra Doon Division (Civil Fund)	160	0	0
	5. Jounsar „ Uncovenanted Family Pension Fund ...	20	6	0
		408	5	11
	To Advances received during the year.			
	3. Gurhwal Division	25	0	0
	5. Jounsar „	11,234	12	5
		+1	7	0
	7. Goruckpore „	220	3	5
	4. Dehra Doon „ (*Pro formâ* Balance)	1,477	6	4
		12,957	6	2
		+1	7	0
	To Objectionable items during the year.			
	6. Bhagaruthy Division	2,29,848	12	0
		2,29,848	12	0
	Military Department, Bengal.			
	Value of stores, &c., supplied by Military Department	658	2	11
	GRAND TOTAL ... Rs. ...	29,67,813	5	5
		+421	4	11

Year.	Heads of Account.	Rs.	A.	P.
1872-73.	*By Funds and deductions paid into Treasury during the year (Government of India) Military Orphan.*			
	2. Kumaon Division, Rs. 107-13-1, 120-2-10	227	15	11
		227	15	11
	By Remittances to Public Works and other Departments by Book Transfer during the year.			
	2. Kumaon Division	51,963	10	0
	3 Gurhwal „	62,094	2	9
		—200	0	0
	4 Dehra Doon „	16,656	7	11
	5. Jounsar „	3,01,400	12	4
	6. Bhagaruthy „	6,84,187	11	6
		1,116,302	12	6
		—200	0	0
	By Advances recoverable during the year.			
	2. Jounsar Division	14,000	0	0
		14,000	0	0
	By Profit and Loss during the year.			
	4. Dehra Doon Division (*Pro formâ* Balance)	1,477	6	4
	Written off to profit and loss—*vide* Government of India, Financial Department, No. 1139, dated 23rd June, 1873, communicated to Conservator under Government, North-Western Provinces, Public Works Department, No. 250 F., dated 7th July 1873—See Accountant-General's No. 6708, dated 2nd August, 1873.	1,477	6	4
	By Cash Balances in hand on 31st March, 1873.			
	1. Direction Division	693	12	7
	2. Kumaon „	16,287	3	10
	3. Gurhwal „	26,850	5	0
	4. Dehra Doon „	2,929	4	11
	5. Jounsar „	588	8	3
	6. Bhagaruthy „	1,528	6	7
	7. Goruckpore „	1,659	5	0
		50,576	14	2
	GRAND TOTAL ... Rs. ...	2,967,813	5	5
		+421	4	11

G. GREIG,
Offg. Conservator.

Dated 18th August, 1873.

N. B.—This statement has been checked by the Accountant-General.

No. 23.

FOREST DEPARTMENT, N.-W. P.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers for the year 1872-73.

Divisions.	Department Debtor.			Department Creditor.			Balance Due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during year	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (Outstandings).	By Department (Liabilities).
	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.
Kumaon	...	1,02,709 5 4	1,02,709 5 4	5,693 7 5	1,11,407 15 11	1,17,101 7 4	14,392 2 0	...
Gurhwal	...	50,636 15 9	50,636 15 9	15,336 3 0	36,846 0 2	52,182 3 2	5,035 10 1	3,490 6 8
Dehra Doon	52 2 1	23,572 2 1	23,624 4 2	11,955 1 7	19,066 15 9	31,022 1 4	7,397 13 2	...
Jounsar	3,713 11 4	41,570 10 9	45,284 6 1	27,834 11 10	44,058 14 6	71,893 10 4	26,609 4 3	...
Bhagaruthy	...	6,47,544 8 8	6,47,544 8 8	3,77,000 0 0	3,94,098 6 4	7,71,098 6 4	1,23,553 13 8	...
Goruckpore	...	29,047 3 7	29,047 3 7	4,097 3 5	25,615 2 10	29,712 6 3	1,526 14 5	861 11 9
Jhansie	...	175 8 8	175 8 8	...	175 8 8	175 8 8	...	...
Rohilkhund	...	1,311 0 6	1,311 0 6	...	1,311 0 6	1,311 0 6	...	...
Total ...	3,765 13 5	8,96,567 7 4	9,00,333 4 9	4,41,916 11 3	6,32,580 0 8	10,74,496 11 11	1,78,5.5 9 7	4,352 2 5

Forest Office, N.-W. P. :
Dated Nynee Tal, the 18th August, 1873.

G. GREIG,
Offg. Conservator.

No. 24.

FOREST DEPARTMENT, N.-W. P.

Statement of Timber brought to Depôts from the different Forest Divisions, for the year ending 31st March, 1873.

Name of river or division.	Forest	Description of timber.	Pieces number.	Estimated cubic feet.	Total of each river or division. Pieces.	Total of each river or division. Cubic feet.	Remarks.
Kumaon Division	...	Sâl Logs	1,145	60,124′ 9″ 7‴			
		„ Sleepers	15,022	20,418′ 0″ 8‴			
		„ Kurrees	24,744	44,615′ 0″ 2‴			
		„ Koloos	17	998′ 3″ 9‴			
		Sein Kurrees	387	851′ 6″ 4‴			
		Huldoo, various	6	14′ 0″ 9‴	41,321	1,27,021′ 9″ 3″	
Gurhwal Division	...	Sâl Sleepers	13,556	18,074′ 8″ 0‴			
		„ Kurrees	17,608	...			
		„ Beams	90	...			
		„ Miscellaneous	20,105	...			
		Bakli Logs	20	741′ 8″ 4‴			
		Kokot Bullahs, &c.	7,080	...	58.459	18,816 4 4	
Dehra Doon Division ...	...	Sâl Kurees	16 852	...			
		Sein „	18,394	...			
		Jammon „	716	...			
		Other scantlings	563	...	36,525		

Jounsar Division	...	Deodar Kurrees	6,050	10,391′ 9″ 4‴			
		„ Planks	364	...			
		Rai Kurrees	545	940′ 9″ 3‴			
		„ Planks	1,172	...			
		„ Bullees	32	...			
		Deodar and Rai Planks (condemned) ...	8,227	...			
		Deodar and Rai Kurrees (condemned) ...	45	...			
		Kurso Logs	15	...	16,460	11,332 6 7	
Goruckpore Division ...	...	Sâl Logs,...	2,100	24,334′ 8″ 10‴			
		Bija Logs	2	23′ 11″ 10‴			
		Kurma Logs	60	753′ 7″ 5‴			
		Jumoon Logs	15	152′ 8″ 8‴			
		Asun Logs	678	8,497′ 0″ 0‴			
		Bullahs and Koorahs	1,002	...	3,857	33,762 0 9	
Jhansie Division	...	Bamboos	4,335	...	4,335		
Rohilkhund (Bijnour) ...	...	Sâl Bullahs	16,410	...			
		Other kinds	78	...	16,488		
		Grand Total, Number of Pieces ...	...	...	1,77,445		

Nynee Tal :
The 18th August, 1873.

G. GREIG,
Offg. Conservator.

No. 25.

FOREST DEPARTMENT, N.-W. P.

Annual Timber Account for 1872-73.

Headings and divisions.	Sál Logs.	Sál Kurrees.	Sál all other kinds of.	Deodar Logs.	Deodar Kurrees and sleepers.	Deodar Planks and Rai Kurrees.	Huldoo Bullees, Roi Bullees, and Rai Planks and Turrucks.	Cheer sleepers.	Other kinds.	Pieces.	Totals.
Particulars.											
I.—Stock in hand at the depôts of the following divisions at the commencement of the year.											
Kumaon ...	2,444	...	6,038	...	...	...	...	...	...	8,482	
Gurhwal ...	980	...	11,388	...	...	...	...	...	...	12,368	
Dehra Doon ...	...	...	...	...	...	...	...	...	...	...	
Bhagaruthee ...	...	...	...	...	135	292	...	58	...	485	
Jounsar ...	...	...	...	...	10,717	38,051	801	...	...	49,569	
Goruckpore ...	422	...	...	...	...	...	...	...	...	422	
Jhansie ...	...	...	...	...	...	...	...	...	2,298	2,298	
Rohilkhund (Bijnour)	...	...	...	...	...	...	...	...	...	...	73,624

Headings and divisions.	Sál Logs.	Sál Kurrees.	Sál all other kinds of.	Deodar Logs.	Deodar Kurrees and sleepers.	Deodar Planks and Rai Kurrees.	Huldoo Bullees, Roi Bullees and Roi Planks and Turrucks.	Cheer sleepers.	Other kinds.	Pieces.	Totals.
Particulars.											
I.—Timber removed by purchasers from depôts during the year.											
Kumaon	1,129	19,696	20,698	...	...	...	3	...	162	41,688	
Gurhwal	225	2 857	30,585	...	...	..	...	...	...	33,667	
Dehra Doon ...	...	10,309	...	...	...	...	...	...	16,796	27,105	
Bhagaruthee ...	...	...	...	...	...	...	...	...	...	...	
Jounsar	...	...	...	...	7,008	12,606	772	...	...	20,386	
Goruckpore ...	866	...	...	...	...	...	...	...	577	1,443	
Jhansie	...	...	...	...	...	...	...	...	3,715	3,715	
Rohilkhund (Bijnour)	...	...	14,837	...	...	...	...	...	78	14,915	1,42,919

II.—Timber received at depôts from the forest during the year.											
Kumaon ...	1,145	24,744	15,039	...	...	...	6	...	387	41,321	
Gurhwal ...	...	17,608	33,751	...	...	...	...	...	7,100	58,459	
Dehra Doon ...	...	16,852	...	...	...	...	...	...	19,673	36,525	
Bhagaruthee ...	...	...	...	...	...	...	...	...	...	...	
Jounsar ...	...	...	...	...	6,050	10,368	32	...	...	16,460	
Goruckpore ...	2,100	...	...	...	...	...	...	...	1,757	3,857	
Jhansie ...	...	...	...	...	...	...	...	...	4,335	4,335	
Rohilkhund (Bijnour)	...	...	16,410	...	...	...	...	...	78	16,488	1,77,445
GRAND TOTAL, PIECES ...											2,51,069

II.—Timber lost during the year. (Used on local works and otherwise struck off stock).											
Gurhwal ...	500	...	5,124	...	...	...	...	...	...	5,624	
Jounsar ...	...	...	...	...	400	7,128	...	...	...	7,528	
Jhansie ...	...	...	...	...	...	...	...	...	1,389	1,389	14 541
III.—Stock in hand at the close of the year at the following depôts:—											
Kumaon ...	2,460	5,048	879	...	...	...	3	...	225	8,115	
Gurhwal ...	255	14,751	9,430	...	...	...	...	...	7,100	31,536	
Dehra Doon ...	...	6,543	...	...	...	...	...	...	2,877	9,420	
Bhagaruthee ...	...	...	...	...	135	292	...	58	...	485	
Jounsar ...	...	...	...	...	9,369	28,685	61	...	...	38,115	
Goruckpore ...	1,656	...	...	...	...	...	...	...	1,180	2,836	
Jhansie ...	...	...	...	...	...	...	...	...	1,529	1,529	
Rohilkhund (Bijnour) ...	...	...	1,573	...	...	...	...	...	...	1,573	93,609
GRAND TOTAL, PIECES, ...											2,51,069

NYNEE TAL:
The 18th of August, 1873.

G. GREIG,
Offg. Conservator.

No. 26.

FOREST DEPARTMENT, N.-W. P.

Statement showing the Amount realized on account of the different classes of Timber sold during 1872-73.

Divisions.	No of logs, &c, sold.	Cubical contents.	Amount realized and due on account of timber sold.	Average amount per log.	Average cubical contents of logs.	Average amount per 100 cubic feet.
			Rs. a. p.	Rs. a p.		
Kumaon	41,688	105,608′ 11″ 6‴	88,773 4 6	2 2 0	2′ 6″ 5‴	84 0 11
Gurhwal	33,667	* ...	72,454 6 2	2 1 10	...	...
Dehra Doon	2[illegible],105	* ...	25,105 8 4	0 14 10	...	...
Jounsar	20,386	* ...	29,413 7 11	1 7 1	...	...
Goruckpore	1,443	10,597′ 10″ 9‴	2,043 8 4	1 6 8	16′ 4″ 1‴	19 4 6
Jhansie	3,715	* ...	Proceeds credited under Head II.			...
Rohilkhund	14,915	* ...	2,837 9 2	0 3 0	...	...
	1,42,919	...	2,20,627 12 5	...	...	...

Remarks.	
Pieces.	
Timber sold in previous years remaining unremoved at the commencement of the year ...	1,42,919
Timber sold during the year ...	1,42,919
Total ...	1,42,919
Timber remaining unremoved at the close of the year ...	...
Balance removed from Depôts by purchasers during the year ...	1,42,919

Deduct amount due but not realized during the year ...	19,007 8 4
Balance	2,01,620 4 1
Add amount realized on account of former years ...	31,285 8 10
Add also amount realized for other kinds of timber ...	9,59,201 11 10
Total shown as revenue on account of timber sales ...	11,92,107 8 9

* As but a minority of the total number of logs and pieces has been measured, the contents have been omitted, as incompatible with the requirements of Columns 6 and 7.

G. GREIG,

Offg. Conservator.

Dated 18*th August*, 1873.

No. 27.

FOREST DEPARTMENT, N.-W. P.

Statement showing the amount expended on account of Timber received from the different Forest Divisions during 1872-73.

Name of Division.	No. of logs and pieces.	Cubical contents.	Timber expenses.	Conservancy expenses, cost of establishment, &c, of the Department, including direction.	Total amount expended, including direction.	Average amount paid per log or piece.	Average cubical contents per log or piece.	Average amount paid per 100 cubic feet.	REMARKS.
			Rs. a. p	Rs. a. p.	Rs. a. p.	Rs. a. p.		Rs a. p.	
Kumaon...	41,321	1,27,022	45,062 11 3	49,280 8 11	94,343 4 2	2 4 6	3 74	74 4 4	
Gurhwal	58,459	...	23,700 0 0	39,803 10 0	63,503 10 0	1 1 4	...	...	
Dehra Doon	36,525	...	11,378 2 4	35,796 4 3	47,174 6 7	1 4 8	...	...	
Jounsar	16,460	...	2,77,646 7 6	82,509 12 4	3,60,156 3 10	...*	...	...	* Average not given since the expenditure includes sleeper expenses, and the outturn of sleepers is not exhibited in this return.
Goruckpore	3,857	33,762	5,979 2 3	10,388 11 0	16,367 13 3	4 3 10	* 8 75	48 7 8	
Jhansie	4,335	...	280 8 11	1,244 6 3	1,524 15 2	0 5 7	...	...	
Rohilkhund (Bijnour) ...	16,488	...	1,543 5 3	2,173 0 8	3,716 5 11	0 3 7	...	...	

G. GREIG,

Offg. Conservator.

Dated the 18th August, 1873.

No. 28.

FOREST DEPARTMENT, N.-W. P.

Annual Account of Forest Revenue for 1872-73.

Receipts	Rs.	a.	p.
Amount of revenue realised in 1872-73	16,42,857	6	9
Deduct—			
Amount realised on account of previous periods	31,285	8	10
Balance	16,11,571	13	11
Add—			
Outstandings on account of the year	1,78,515	9	7
Minus for bad debts	1,961	4	11
	1,76,554	4	8
Value of the year's transactions ... ... Rs.	17,88,126	2	7

Disbursements.	Rs.	a.	p.
Amount disbursed in 1872-73	10,19,011	12	1
Deduct—			
Amount disbursed on account of transactions of former periods ...	7,770	3	1
Balance...	10,11,241	9	0
Add—			
Amount due for transactions during the year under review, but not yet disbursed	4,352	2	5
Real cost of year's transactions	10,15,593	11	5

	Rs.	a.	p.
Value of the year's transactions	17,88,126	2	7
Cost of the year's transactions	10,15,593	11	5
Balance	7,72,532	7	2
Add difference between the value of stock at the commencement and close of the year	18,719	7	10
Net results of the year ... Rs.	7,91,251	15	0

OFFICE OF CONSERVATOR OF FORESTS, N-W. P.:
Dated Nynee Tal, the 18th August, 1873.

G. GREIG,
Offg. Conservator.

Area of Reserved Forests.

Reserved Forests.		Area in 1871-72.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.
		Square miles.	Square miles.	Square miles.	Square miles.
Kumaon Division		...	...	...	...
Gurhwal „		...	...	...	...
Dehra Doon „		...	...	...	...
Jounsar „		Information not yet received.			
Bhagerutty „		...	...	...	...
Goruckpore „		...	...	...	...
Jhansie Division.	Jhansie Forests	...	...	...	...
	Lullutpore „	141·63	...	...	141·63
	Jaloun „	3·18	...	...	3·18
Rohilkhund Division.	Barcilly Forests... ...	...	...	...	...
	Bijnour „	85·78	0·30	...	86·08
Total		230·59	0 30	...	230·89

Area of Unreserved Forests.

Unreserved Forests.		Area in 1871-72.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.
		Square miles.	Square miles.	Square miles.	Square miles.
Kumaon Division		922	...	...	922
Gurhwal „		1,000	...	...	1,000
Dehra Doon „		485·225	...	...	485·225
Jounsar „		Information not yet received.			
Bhagerutty „		Not known.		Forests leased from the Gurhwal Rajah.	
Goruckpore „		134	...	...	134
Jhansie ...	Jhansie Forests	33	...	1	32
	Lullutpore „	Not demarcated.			
	Jaloun „	...	...	...	...
Rohilkhund Division.	Barcilly Forests ...	153·314	...	...	153·319
	Bijnour „	Information not yet received.			
Total ...		2,727·539	...	1	2,726·539

Office of Conservator of Forests, N.-W. P.:
Dated Nynee Tal, the 18th August, 1873.

G. GREIG,
Offg. Conservator.

Area of Plantations.

Plantations.	Area in 1871-72.	Total cost.	Area added during 1872-73.	Amount expended during 1872-73.	Total area up to 1872-73.	Total expenditure incurred up to 1872-73.
	Acres.	Rs. a p	Acres.	Rs. a p.	Acres.	Rs. a. p.
Kumaon Division ...	155 50	3,232 10 8	Filling in vacancies and transplanting seedlings in nursery.	2,141 13 2	155·50	5,374 7 10
Gurhwal „ ...	...	...	...	...	...	...
Dehra Doon „ ...	...	...	Unknown.	301 12 6	...	304 12 6
Jounsar „ ...	Not known	...	Not known	4,000 0 0	Not known	4,000 0 0
Bhagerutty „ ...	...	...	...	...	...	...
Goruckpore „ ...	15	424 0 0	10	712 2 6	25	1,136 2 6
Jhansie Division. — Jhansie Forests,	1,791	Not known.	...	Not known.	1,791*	Not known.
Jhansie Division. — Lullutpore „	...	...	...	...	...	...
Jhansie Division. — Jaloun „	...	...	...	...	...	...
Rohilkhund Division. — Bareilly „	...	...	...	...	...	...
Rohilkhund Division. — Bijnour „	...	...	...	...	...	...
Total ...	1961 50	3,656 10 8	10	7,158 12 2	1,971·50	10,815 6 10

* See para. 45 of Annual Report for 1872-73.

Area of Forest Tracts protected from fire.

Forest tracts protected from fire.	Area in 1871-72.	Total cost.	Additional area protected in 1872-73.	Amount expended in 1872-73.	Total area protected up to 1872-73.	Total expenditure incurred up to 1872-73.
	Acres	Rs. a. p.	Acres.	Rs. a. p.	Acres.	Rs. a. p.
Kumaon Division ...	12,800	112 1 3	None but 640 acres of the portion preserved last year were again preserved this year.	273 7 3	12,800	385 8 6
Gurhwal „ ...	1,273	Not known.	2,400	130 4 9	3,673	130 4 9
Dehra Doon „ ...	245	Not ascertainable.	61	405 0 0	...	405 0 0
Jounsar „ ...	Information not yet received					
Bhagerutty „ ...	...	...	...	...	...	...
Goruckpore „ ...	Nil.	30 0 0	Nil.	...	...	30 0 0
Jhansie Division. — Jhansie Forests,	...	...	...	...	...	...
Jhansie Division. — Lullutpore „ ...	...	...	...	...	...	...
Jhansie Division. — Jaloun „ ...	...	...	...	...	...	...
Rohilkhund Division. — Bareilly Forest,	...	...	...	...	...	...
Rohilkhund Division. — Bijnour ...	...	...	...	...	...	...
Total ...	14,318	142 1 3	2,461	808 12 0	16,779	950 13 3

OFFICE OF CONSERVATOR OF FORESTS, N.-W. P. :
Dated Nynee Tal, the 18th August, 1873.

G. GREIG,
Offg. Conservator.

Prosecutions for breaches of the Forest Rules.

		Number of prosecutions.		Convictions obtained or still pending.	
		Number of cases.	Number of persons.	Number of cases.	Number of persons.
Kumaon Division		134	170	125	160
Gurhwal "		18	19	17	18
Dehra Doon "		30	54	25	42
Jounsar "		35	64	27	49
Bhageruttee "		5	11	5	11
Goruckpore "		4	9	2	4
Jhansie Division ...	Jhansie Forest ...	3	10	3	3
	Lullutpore " ...	1	1	1	1
	Jaloun " ...	...	...	...	...
Rohilkhund Division,	Bareilly " ...	...	...	...	...
	Bijnour " ...	6	20	4	15
	Total ...	235	358	209	303

OFFICE OF CONSERVATOR OF FORESTS, N.-W. P.:
Dated Nynee Tal, the 18th August, 1873.

G. GREIG,
Officiating Conservator.

REPORT ON PANJAB FOREST ADMINISTRATION FOR 1872-73.

No 1224 of 1873-74.

FROM

BERTHOLD RIBBENTROP, ESQUIRE,

Officiating Conservator of Forests, Panjáb.

To

T. H. THORNTON, ESQUIRE, D. C. L.,

Secretary to Government Panjáb.

Dated Lahore, 25th August 1873.

SIR,

I have the honor to submit the Annual Report for 1872-73. I have to apologize both for the delay and the incompleteness of the Report. The local reports, though due by the end of April, were countermanded by my predecessor till such time as the Accountant General's Statements would be ready.

In consequence of this order, I only received the last Divisional Report in August, and the Officer in charge of the Ráví Division has but furnished me with a Tabular Statement of work done.

SPECIAL REPORT.

CHAPTER I.—STATE AND LEASED FORESTS.

SECTION I — AREA AND BOUNDARIES.

Hazara Forests.

2. The Dúngágalí Range, containing 41,023 acres, or 64 square miles, was transferred to the Forest Department in November 1872. This tract comprises—

1. The Thandiání Range.
2. Dúngágalí Range.
3. Khyrágalí Range.

Besides this tract unencumbered by rights, grazing is prevented on 21,444 acres, and the cutting of grass on 41,763 acres more.

3. During the survey of the Hazárá Forests, boundary pillars, constructed of loose stones, were erected by the Settlement Officer, but here, as well as in the Khánpúr Forests, many of them have been destroyed by the heavy snow-fall during the winter. They are now being replaced by masonry pillars.

4 In accordance with letter No. 784 dated January 1873, received from the Settlement Officer, and containing instructions from Government, 4·16 acres of the reserved forest near Kálábágh were made over to Mr. Whimper, Agent to the Murree Brewery.

Rawalpindi Forests.

5. The rakhs in the Khánpúr Tahsíl, surveyed and demarcated during the previous year, were transferred to this Department in November 1872, and placed under the Ráwalpindi Sub-Division. They are at present mere grass rakhs; but as the rights and privileges therein are distinctly defined, they afford many facilities for reproduction.

Hoshiarpur Forests.

Alteration of the boundaries of Lohára Forests.

6. The Zamíndárs of Lohára petitioned against last year's Settlement of the Lohára Forest, and the Superintendent of Jálandhar, as well as the Financial Commissioner, asked for a reconsideration of the boundary question. Mr. Duff, accompanied by Mr. Roe, re-inspected and altered the boundary line, and, though Government loses by this arrangement about 72 acres of forest land, still it is satisfactory to know that the question can be regarded as finally settled.

The boundaries of the Bamboo Forests of Karnpúr and Bindraban.

7. The boundaries of the Bamboo Forests, Karnpúr and Bindraban, were attested and compared with the Settlement records. This was done more especially with a view to ascertain and fix the area of cultivated land within the forest boundary. The Karnpúr Forest was found to contain 5,325 acres, 437 of which are under cultivation; and the Bindraban Forest 4,284 acres, 128 acres only of which are cultivated. The areas of the forests were formerly given as 7,535 and 4,310 acres respectively, which figures, however, must have been entered previous to the forest survey.

No progress in demarcation of Kángra Forests.

8. No progress was made during the cold season in the demarcation of the forest in Nurpúr Tahsíl. Mr. Duff's time was unexpectedly taken up by work in other parts of his Division, and no Civil Officer was appointed by Government as Arbitrator in the place of Mr. Roe.

Kulu Valley.

Forests selected for demarcation during 1873-74.

9. Fifteen forests were carefully inspected with a view to their being demarcated during the present summer and autumn. These forests will be taken over in addition to those already reported as unencumbered State property.

Gurdaspur.

Course of action not settled.

10. I am sorry to report that nothing has been done with regard to the Settlement of the Gurdáspúr Chíl Forests; but as long as there is a hope of procuring some of the forests compact and free of rights, I cannot agree to the proposal made by Mr. Roe and Mr. Sparling, "to reserve the rights of the State to all valuable trees not growing on actually private land, allowing trees and fuel on free permit to landowners, and modifying existing rules to suit this purpose." This arrangement, though apparently common sense and just from a financial point of view, is in no way conducive to true conservancy, and does not in the least prevent the deterioration of the whole forest; for, though it may for a time stay the destruction of the more valuable species of trees, it must more or less prevent their reproduction.

Lahore District.

The transfer of land to the Civil authorities.

11. In the Lahore District the area in charge of the Forest Department has changed by the re-transfer of 24,213 acres of land to the District authorities. These lands were under long cultivating leases for periods above ten years. In the beginning of the year 10,750 acres of rakh land were under cultivation on annual lease, of which the leases of 1,603 acres were cancelled during the year, thus leaving an area of 9,147 acres only in the hands of the Zamíndárs.

12. In Multán we have at present 35 rakhs with an area of 59,958 acres, and it is further contemplated to take over other extensive tracts of well-wooded rakh land which lie near enough to a market to make their conservancy remunerative. The rakhs to be selected are situated in the north of the district, within 10 miles of either bank of the Ráví, in the centre of the district, within 10 miles from either side of the Railway line, in the south-east corner of the district, within 10 miles of the right bank of the Satlaj, and in the west along the left bank of the Chináb, within 10 miles of the river. The boundaries of the Government rakhs are uncertain and undefined, and in many places no trace whatever can be found of the old pillars. Mr. Ellis, Assistant Conservator, is at present in charge of the Survey and Settlement of these forest tracts.

Muzaffargarh.

13. The total area of the 65 rakhs in this district, at present in charge of the Forest Department, amounts to 1,13,953 acres. Forty-three of these rakhs are situated on sailába land of the best description, and are well wooded; they contain 40,902 acres.

Other tracts available.

14. The Deputy Commissioner of Muzaffargarh, moreover, informs the Forest Department that he considers several other tracts of land in his district equally good as regards the reproduction of forests, and recommends their preservation by this Department. These forests will be most carefully inspected during the ensuing cold weather, with a view to ascertain their capabilities of yielding a constant supply of fuel for the Indus Valley State Railway and the steamers plying on that river.

Demarcations.

15. The rakhs in this district were demarcated by means of trenches during the last Revenue Settlement, but no pillars or other boundary marks are in existence.

Derah Ghazi Khan.

New rakhs transferred to the Forest Department.

16. During the year 84 rakhs, comprising 2,20,311 acres, were transferred to the Forest Department. Many of these rakhs are situated on sailába land and already well wooded, and are at the same time capable of being improved. These rakhs too will be visited and carefully inspected during the current year, and I hope there will be no difficulty in arranging for a sufficient supply of fuel for the Indus Valley State Railway.

Montgomery rakhs.

17. The Montgomery rakhs, 55 in number, contain 552,794 acres. The boundary pillars, which were erected during the first Revenue Survey, have disappeared in many places, and require to be renewed to avoid boundary disputes and encroachments. This will be done as soon as possible.

Gujranwala District.

18. The rakh area of the Gujránwála District has changed during the year. Two rakhs, with an area of 962 acres, were made over to the Plantation Division, and certain rakhs from the Jhang District, containing 87,480 acres, were added, as well as 2,735 acres from the Gujrát District, in consequence of the change in the course of the Chináb; further, 300 acres were made over by the Civil authorities on the expiration of short term leases. The total area is at present 2,42,606 acres, comprising 61 rakhs.

Survey and boundary marks.

19. The rakhs have all been surveyed and estimated, and maps and plans for working them are in course of preparation. The boundary pillars are in good repair. At present no rakh land is in the hands of cultivators, and it was only in a single instance that we were obliged to have to resume a small area of eight acres by ejectment of the Zamíndárs, in compliance with the Financial Commissioner's orders.

Shahpur District.

Transfer of 14 rakhs in the Salt Range.

20. In the Sháhpúr District 14 rakhs, situated in the Salt Range, containing 1,02,312 acres, were transferred from the Civil Department, and a reference was made to the Financial Commissioner commending the transfer of the remainder of the rakhs in that range. Orders for the transfer were received per Financial Commissioner's letter No. 7454 dated 28th October 1872, to address of the Conservator, but for various reasons the taking over was delayed to the 1st April 1873.

Transfer of the Sukesar rakhs.

21. In accordance with the recommendation of the Deputy Commissioner, rakh Sukésar, of the Salt Range, with an area of 5,951 acres, was re-transferred to the district.

Transfer of Bherah rakhs sanctioned.

22. The above-quoted letter sanctioned at the same time the transfer of the rakhs of the Bheráh Tahsíl of the Sháhpúr plains, and these, 38 in number, and 1,47,870 acres in extent, were accordingly taken over on the 1st April 1873. The total area of rakhs in the Sháhpúr District in charge of the Forest Department amounts, therefore, to 2,82,101 acres.

Bannu District.

Káchhi Forests

23. In the Bannú District no forests have as yet been actually transferred to the Department, though we hold a sort of charge over 14 blocks of shísham in the Miánwálí Káchhí. There is, however, a difficulty as regards the settlement of compensation to be given to the Zamíndárs for the rights they have as proprietors of the soil, and I see no hope of a satisfactory settlement of the question.

Gujrat District.

Annual changes in the area

24. In the Gujrát District certain changes in the area have been caused, and will be constantly effected by the action of the rivers Chináb and Jhelam; but if we have not the means to re-survey the Béláś after each rainy season, it is impossible for me to state the actual extent of these changes. Two rakhs, as already mentioned in the paras. treating of the Gujránwála District, were bodily taken over to the left bank of the river Chináb by an alteration in its course.

Demarcation in Northern Rakh Division.

25. In the Gujrát District the boundaries are in a very unsettled state, and give cause to numerous disputes, many of which have been in existence for the last five or six year. The Deputy

Commissioner of the District, however, promises to lend his aid to complete settlement of all these differences during the next cold season. The boundary pillars in the eJhlam District, which are of masonry, have been repaired; and to enable the Forester to describe the position where damage has been done to the rakhs, Persian numbers have been painted with Chíl tar on the side of the pillar facing the rakh; each rakh receives a new series of numbers, commencing always at the south-west corner. Nothing has been done to improve the demarcation in the Sháhpúr District, which is still in the same imperfect state as described in last year's Annual Report.

Kalesar Forest.

Claims of Dalíp Singh.

26. The Government Forest of Kalésar has been demarcated, and the claims of Dalíp Singh, of Kalésar village, have been reported as settled. During the year Dalíp Singh refused to Government the right of way through his portion of the forests, and caused thereby considerable inconvenience and loss of revenue. The Deputy Commissioner of Ambálah, however, after a careful enquiry into the question, considered Government to possess right of way, and marked out an export road through the land belonging to Dalíp Singh.

Basahir.

27. No alteration in area of boundaries or demarcation have taken, place in the forests leased by Government from the Rájah of Basáhir. I must again, however, draw the attention of Government to the necessity of surveying these most valuable forests, in order to prepare a plan for their utilization, and what is of still greater importance, for their reproduction, and would beg that the services of the Forest Survey Branch be asked for.

Chamba Forests.

28. During the present year the whole of the forest tract already surveyed in Pángí, amounting to 21,233 acres, was demarcated with pillars along that part of the boundary adjoining village areas. In mostcases, however, the boundaries of the Pángí Forest are naturally so defined that pillars are unnecessary. Five new forests on the Sechú and Teran streams, containing about 1,600 acres, have been selected with a view to their preservation, though they only consist as yet chiefly of Pinus Excelsa, Abies Smithiana and Picea Webbiana.

Ravi Forests.

29. The preliminary demarcation of the eastern portion of the Upper Ráví Forests has been completed, with the exception of those in Block 1, Bátrí, which latter consist of small plots of scattered Deodar and Pinus longifolia everywhere intersected by cultivation.

30. In addition to these, eight forest tracks have been selected and demarcated in the northern portion in block Tísa, No. 8, and one in block 9, in the Tickrí district. The survey of the forests has been discontinued, and all that is being done at present is to determine the boundaries, rights and privileges of the selected forests in conjunction with the Superintendent of Chamba. It would be a saving of much time and trouble if an authorized Chamba official would constantly accompany the Officer in charge of the Division, but the Chamba authorities seem to object to this course of action, and as Colonel McAndrew intends to visit all the selected forests during this summer, I have no doubt that the question will be finally and satisfactorily settled.

Lower Ráví Forests.

31. The forests on the Lower Ráví, including Kálátop, Kaintlí, and Baklo have been completely demarcated, as already mentioned

in last year's Annual Report, but no steps have been taken as regards the proposed reserves at Banní Khét. The local officer has been directed to submit proposals for the preservation and utilization of these forest tracts, but they have not as yet been received in this office, and I have my doubts whether even the preliminary steps have been taken towards their preparation. This is very much to be regretted, as the vicinity of a large Sanitarium and Military Cantonment makes the forests exceedingly valuable.

SECTION II.—FOREST RIGHTS.

32. There is no doubt that considerable progress in the right direction has been made in the settlement of questions regarding privileges and rights by the completion of the Hoshiárpúr Forest Settlement, but there is still a great amount of work to be done before a similar Settlement can be effected or even initiated in other parts of the province. The value of right increases of course with the increasing population, and with it the difficulty of a permanent Settlement. But what I regret most is, that the relative right to the dominion seems to depend in a large degree on the opinion of individual authorities.

SECTION III.—PROTECTION.—FOREST OFFICERS.

System of Report.

33. In all Divisions a system of report has been instituted. Weekly reports are submitted by the Officer in charge of the Sub-Division, and in the event of fires and theft, the removal of boundary marks, and other grave offences, special reports are at once forwarded by the Head Forester.

Jhelam Division.

34. The gravest calamity is the constant recurrence of forest fires, lighted no doubt with a view to produce a better crop of grass. In the Ráwalpindi Division alone 13,600 acres of forests were burnt down on different occasions, and, though heavy fines were inflicted, we have not succeeded in putting a stop to the malpractice.

Timber-theft.

35. Forty cases of theft of timber in the Lower Jhelam Sub-Division were tried, and only five thrown out for want of evidence. In 24 cases the fines amounted to Rs. 481 ; in two cases the punishment was one month's imprisonment, and in nine cases six months' imprisonment, together with a fine of Rs. 100 in each case. The results of these trials were much more satisfactory than during the previous year. The timber was in most cases stolen by the Zamíndárs of villages in the vicinity of the river, and was generally found buried in fields and dung-hills.

Ráwalpindi Forest Rules.

36. 672 persons were tried for breach of the forest rules in the Ráwalpindi Sub-Division, and 130 of these were convicted.

Forest offences.

37. In the Hazárá District 72 cases were brought to trial, of which 28 were disposed of by fines, 14 rejected, 2 transferred to other Courts, and 28 are still pending. I must here repeat the same remark Mr. Powell made last year on inadequate punishment, and I cannot abstain from inserting a list of cases prosecuted during the year.

Statement of Cases prosecuted during the year 1872-73.

Number.	Name of Defendant.	Offence.	Date of institution.		Date of Decision.		Court.	Orders.
1	Merú ...	Destroying 1 Tree	18	April 1872	26	April 1873	MANSEHRAH TAHSIL.	Fined Rs. 5.
2	Aládín ...	ditto 1 Log	20	ditto	20	ditto		Rejected.
3	Madat Khán ...	ditto	18	ditto	30	ditto		Fined Rs. 10.
4	Ghulám Sháh ...	ditto 5 Beams	21	May 1872	1	July 1872		ditto 15.
5	Imám-ud-dín ...	ditto 1 Log	...	ditto	19	ditto		ditto 1.
6	Safdar Alí ...	ditto 1 Tree	..	ditto	16	Sept. 1872		Rejected.
7	Menhdí Sháh ...	ditto 12 Trees	10	Jan. 1873	10	Aug. 1872		Fined Rs. 25.
8	Hashmat Khán ...	ditto 1 Log	9	ditto	...	ditto		Rejected.
9	Arsala Khán ...	ditto 50 Trees	16	Sept. 1872	...	...		Remaining.
10	Jiá and Súba ...	ditto 118 Logs	29	ditto	...	...		Fined Rs. 9 each
11	Bagú and Muhammad Alí	ditto 8 Trees	28	Oct. 1872	...	...		ditto 4 do.
12	Nádar and Nasra, &c. ...	ditto { 17 Beams, 11 Logs }	5	Nov. 1872	...	...		Remaining.
13	Muhammad ...	ditto 56 Trees	7	ditto	21	Jan. 1872		Fined Rs. 5.
14	Faqír ...	ditto 1 Tree	14	ditto	11	Dec. 1872		ditto 1.
15	Jamd Alí ...	ditto 2 Trees	14	ditto	...	ditto		ditto 12.
16	Júma ...	ditto Boards & trees	6	ditto	...	...		Remaining.
17	Lassa and Azíz ...	ditto 1 Biár	22	ditto	...	...		ditto
18	Gurdás ...	ditto 3 „	10	Dec. 1872	...	...		ditto
19	Ghulám Alí ...	ditto 10 „	...	ditto	...	Dec 1872		Rejected.
20	Nazra ...	ditto 7 „	...	ditto	...	ditto		ditto
21	Faqír ...	ditto 11 Trees	10	ditto	11	ditto		ditto
22	Fyz Núr ...	ditto 1 Tree	11	ditto	21	Jan. 1873		Fined Rs. 2.
23	Nikka ...	ditto 11 Chír beams	10	ditto	7	Feb. 1873		ditto 4.
24	Salámdín ...	ditto 13 Biár	11	ditto	...	...		Remaining.
25	Jámú ...	ditto 3 „	...	...	3	Jan. 1873		Rejected.
26	Kamar Alí ...	ditto 40 „	...	...	...	...		Remaining.
27	Hyát and Fatta ...	ditto 18 Chír beams	12	...	...	...		ditto
28	Mehrú and Lál Bég ...	ditto 18 „	13	...	...	...		Rejected.
29	Hyát ...	ditto 6 Diár	11	...	...	...		ditto
30	Mehrú ...	ditto 5 „	1	ditto	8	Dec. 1872		Fined Re. 1.
31	Jána and Satárú ...	ditto 18 Logs	19	ditto	9	ditto		ditto 1-8.
32	Khyrulla & Co. ...	ditto 2 Chírs	14	Dec. 1872	14	ditto		ditto 8.
33	Faqír ...	ditto 29 „	13	Nov. 1872	11	ditto		ditto 1.
34	Mahtáb Sháh ...	ditto 2 Biár	29	ditto	13	ditto		Rejected.
35	Akbar and Nasra ...	ditto 5 „	5	ditto	...	...		Remaining.
36	Syad Núr ...	ditto 1 Log	10	Dec. 1872	31	Jan. 1873		Fined Rs. 4.
37	Bagú & Co. ...	ditto Trees	28	Oct. 1872	...	...		Remaining.
38	Sédúllah ...	ditto „	23	Dec. 1872	26	Feb. 1873		Rejected.
39	Murid ...	ditto 1 Log	3	Jan. 1873	6	ditto		Fined Re. 1.
40	Ghulám & Co. ...	ditto 4 Biár	...	ditto	13	ditto		ditto 6.
41	Azíz ...	ditto 2 „	...	ditto	...	...		Remaining.
42	Syad Alí ...	ditto 2 „	..	ditto	12	ditto		Fined Rs. 1.
43	Nawáb ...	ditto 43 Kangar	..	ditto	13	ditto		ditto 9.
44	Faqírulla ...	ditto 29 Beams	...	ditto	...	ditto		ditto 2.
45	Núr Ahmad ...	ditto 2 Chir	...	ditto	...	...		Remaining.
46	Bahádur ...	ditto 52 „	...	ditto	...	...		Rejected.
47	Mir ...	ditto Trees	...	ditto	...	...		Fined Rs. 2-8.
48	Nádar ...	ditto 50 Chír	...	ditto	..	...		ditto 2-8.
49	Barkatulla ...	ditto Trees	...	ditto	...	...		ditto 2.
50	Abdulla ...	ditto „	...	ditto	...	...		ditto 2.
51	Nizámdín ...	ditto 1 Kangar	14	ditto	...	...		ditto 2.
52	Niáz Muhammad ...	ditto 1 Log	...	ditto	...	..		Remaining.
53	Shér ...	ditto Trees	...	ditto	...	...		Rejected.
54	Syda ...	ditto 1 Biár	17	ditto	...	...		ditto
55	Núr Hassan ...	ditto 1 Beam	6	ditto	11	Jan. 1873		Fined Rs. 2.
56	Abdulla ...	ditto 3 „	.	ditto	...	ditto		ditto 6.
57	Menhdí ...	ditto 5 „	1	Feb. 1873	6	Feb. 1873		ditto 5.
58	Núr Hassan ...	ditto 1 „	6	Jan. 1873	11	Jan. 1873		ditto 2.
59	Sháh Walí ...	ditto 9 „	...	ditto	22	ditto		ditto 10.
60	Mírzamán ...	ditto 5 Biárs	...	ditto	23	ditto		ditto 2.
61	Ziá-ud-dín ...							
62	Alí Bakhsh ...	ditto 2 Biárs	17	Dec. 1872	17	Dec. 1872	HARIPUR TAHSIL.	Remaining.
63	Sharf ...	ditto 1 „	...	...	...	...		ditto
64	Hyát ...	ditto 4 „	...	...	...	...		ditto
65	Gurmukh Singh ...	ditto 6 „	...	...	...	...		ditto
66	Bakhsh Alí ...	ditto Trees	...	...	...	...		ditto
67	Nádar, Bahádur Khán & Co.	ditto „	20	Jan 1873	...	...		ditto
68	Hábíbullah and Co. ...	ditto 74 Biárs	30	ditto	...	...		ditto
69	Shamam Malak ...	ditto Trees	21	ditto	...	...		ditto
70	Sharaf ...	ditto 74 by fire	24	Feb. 1873	...	...		ditto
71	Sháh Walí ...	ditto 3 Logs	19	Nov. 1872	Inde	pendent territory		M. of Kashmír.
72	Kamra ...	ditto 1 „	...	...		ditto		ditto

Upper Chináb Division.

38. The Division is divided into five beats, Dárwás, Kilár, Sánch, Pártí, and Tindí, to facilitate and regulate the protection. No forest offences whatever were committed during the year, and the country being but thinly populated, it was found sufficient to explain to the people that the forests enclosed within the boundary pillars were specially preserved by Government, to prevent even trespass.

Lower Chináb Division.

39. Eleven cases of theft occurred on the Lower Chináb, in eight of which convictions were obtained; the punishment consisting in fines, two of which amounted to Rs. 300 each. One case was dismissed, and another is still pending, the defendant having absconded.

Upper Rávi Division.

40. Two cases of theft were reported to the Superintendent of Chamba, and are under investigation.

Lower Rávi Division.

41. No offences have been reported by the Officer in charge of the Lower Rávi Division, but I am at present investigating a complicated case of fraud and theft, in which a considerable portion of the subordinates on the river seem to be implicated.

Biás and Satlaj Division.

On the Biás and the Satlaj none but very minor offences have been committed.

Case brought against Forest Department.

42. The Rájah of Biláspúr brought a serious case of misappropriation of timber against the Forest Department. On a full enquiry being made, however, by the Deputy Commissioner, Mr. McNabb, at Bilaspúr, the Rájah utterly failed to prove his accusation, and was severely reprimanded.

Fuel Reserve Division, Central and Northern.

43. In the Central Division 26 cases, 14 under Section 426, 5 under Sections 352 and 353, and 5 under Section 379 of the Indian Penal Code, together with two under Section 24 of the Cattle Trespass Act, were brought to trial. In 15 of the cases convictions were obtained and the defendants punished by fines; the other 11 are still pending orders. In the Northern Division 55 cases were tired, 44 under Sections 352, 379, 426 and 447, Indian Penal Code, and 11 under Act I of 1871, the Cattle Trespass Act, and 43 convictions obtained, the remaining 12 being dismissed for want of sufficient evidence. Punishment was mostly inflicted by fines, imprisonment being only given in 4 cases out of the 43.

Plantation Division.

44. Cattle trespass is the principal offence, but the establishment of pounds at all the larger Plantations has had a beneficial influence. In the Changa Manga Plantations a fire was kindled with the malicious intention of bringing the Forester

in charge into trouble. Luckily it was at once discovered, and no damage whatever was done. The perpetrator, however, was convicted and sentenced to six months' imprisonment. Another grave offence in this Division was the theft of 60 young Kíkar trees, in which six men were implicated. I succeeded in bringing five to justice, who were punished with one year's imprisonment and a fine of Rs. 40 each.

SECTION IV.—MANAGEMENT AND IMPROVEMENT.

Jhelam Division, Ráwalpindi Sub-Division.

45. The Ráwalpindi Forest Rules, recommending the strict conservancy of 30 per cent. of all forests, have not as yet been put in force, and the rakhs are still open to indiscriminate grazing. The supply of fuel from these rakhs has, during the last year, been worked on the contract system in the place of the old and unsatisfactory plan of permits. There is no doubt that Government derives a larger profit by these new arrangements, and that the system permits of better and easier conservancy. It appears, however, to be disliked by the native communities, but I have every reason to believe it is only because the system does not allow of the same chances of theft and other underhand dealings. The inhabitants of the city Fatehjang complained that, under the existing rules, the wood was only sold in stacks, and that the poor people had no chance of supplying themselves with fire-wood. This method was in consequence altered, and the smallest quantity of wood was sold. but unhappily not before the villagers had laid their grievances before His Honor the Lieutenant Governor. The result of these complaints was, that the whole of the Kála Chitta Forest was ordered to be returned to the Civil authorities for the use of the Zamíndárs; and though at present the loss of this important fuel tract is but little felt, still the exhaustion of the nearer rakhs will in a few years not only raise difficulties as regards constant supplies of fuel, but in all probability force Government to have recourse to more severe and unpopular steps than the strictest conservancy of these rakhs would entail at present.

Plantations.

46. The nurseries and plantations formed during the past year in the Attok, Murree and Ráwalpindi sub-ranges seem to have failed. In Chánglágalí 12 acres north of the Cantonment were cleared, fenced and sown with Cedrus deodara, Fraxinus floribunda, and Pinus excelsa; 8,000 young Pinus excelsa plants were also put out with a large ball of earth on the surrounding bare hills, and should succeed.

In Kághán 5,000 young Deodár trees were planted out of the forest during July 1872. They were at that time about nine inches high, and, having been watered during a long drought in August, showed a healthy appearance in October In October 1,000 more young Deodár were put out, and a fence erected for the protection of the plantations.

Building and Communication.

47. A Forest house was built at Ghorágalli.

Upper Chenáb Plantation at Purti.

48. The Purti Plantation has again failed; 9,000 trees were put in in March and 2,574 during the rains, but only 100 of these are now alive. The soil and condition of this Plantation has been condemned ever since it was started, and I am unable to understand the obstinacy exhibited in the constant and expensive recultivation of this Plot.

Ajoge.

In the Ajoge Plantation 3,250 young Deodar were planted out and are reported to be doing well, but they are outgrown by the self-sown seedlings, which are numerous and thriving.

Chao Plantation.

This Plantation was extended by 26 acres, and 14,817 young Deodar planted at four feet apart, but neither success nor failure has been reported.

Bamal Plantation.

Eighty acres were cleared and planted with 37,632 Deodars, and a belt of 2,336 other Pines. Some 150 lbs of Deodar, Pine and Ash seeds were also dibbled in over the several plantations. I feel, however, inclined to take the correctness of the figures reported by the Officer in charge *cum grano salis*, as 26 acres planted at four feet apart would necessitate over 70,000 young plants, and if 39,959 plants were planted over an area of 80 acres they would require to be 87 feet apart.

Roads and Bridges.

49. The road to Rai was extended as far as Saor, a distance of five miles, and a new road was made below the Sanch staircase, which, on account of its steepness and dilapidated state, was exceedingly dangerous. The new road consists of three galleries supported by two-inch iron bars wedged into the solid rock. It is protected from the floods by its great height above the water level, and from the snow by the overhanging rocks. A bridge was thrown over the Ajoge nullah, after the road to it had been prepared by blasting, and the erection of three galleries. Another bridge was also built below Mundla, spanning 97 feet at a height of 200 feet above the river. The júlah by which the river was formerly crossed was 200 feet long, and so rotten that it broke in a high wind soon after the bridge was completed.

Buildings.

A small hut was built at Bamal for the Forester in charge of the Sanch range, with a small room for the Officer in charge, and a powder godown at Kilar. Another hut was also put up at Purtí to serve as a grain godown. In addition to these new erections, the house at Kilar, as well as some other godowns, were newly roofed.

Slides and waterways.

No new slides were built during the year, and only trifling repairs executed. The rocks and whirlpools at Lai-ká Pher were surveyed, but nothing has as yet been done to improve them.

Lower Chenáb Division, riverway and improvement.

50. The time of the Officer in charge was altogether taken up by floating, rafting and collecting stray timber between Wazirábád and Multán, and nothing could be done with regard to river improvement; moreover, the blasting at Reási, recommended in last year's annual report, was found on re-inspection of the place to involve too large an outlay.

51. Mr. Mackay, reports as follows :—

Upper Ravi Division. Planting.

"The following forests have been fenced during the past working season, viz, Lámú, Chanota, Gúarí Mahal and Barnota (partially fenced only), and the fencing of the Dhaur and Kalwal Forests has been completed In the following forests small nurseries were formed, viz., Kugti, Murli, Drab, Neshauri, Nahrgraon, Chitrarí and Bású, but I have not been able to visit any of them with the exception of the one at Bású. The forest at Chanota, Kugti, and the Dhaur forests, in Tisa have been cleared of old and rotten wood, under-growth, brushwood, and creepers and Deodar seed dibbled in over blank places. In the Kugti forest two inspection paths, traversing the most important parts, have been made. Planting was commenced on the Kugti Plantation on the 12th of July 1872, with natural seedlings from an adjoining forest; but I find from Mr. Elliott's notes, when he commenced the above plantation, that he says that not more than 50 per cent. of the plants were such as to ensure success. Besides the above, eight nurseries sown with Deodar seed have been established at Dagirun. There are no notes of the success or otherwise of the above plantation and nurseries, and I have not been able to inspect them myself, as the road to Bamaor is not yet open."

Barmaur Plantation.

This is an experimental plantation formed in August 1872, by Mr. Powell, Officiating Conservator, and Mr. Elliott, Assistant Conservator. I give the notes, as recorded, of the state of 12 Deodar trees at the time of planting, viz., on 5th August 1872, and their condition, on the 4th November 1872. The last time they were visited the plants were from two to six years old.

August 5th 1872.

No. 1. Roots good but injured in forest.
No. 2. Fairly healthy ; indifferent roots.
No. 3. Several years old ; injured in forest ; healthy roots.
No. 4. Remarkably luxuriant.
No. 5. Fairly good roots ; tree healthy.
No. 6. Healthy tree ; moderate roots.
No. 7. ,, ,; ,, Tap root cut.
No. 8. Old and well grown tree.
No. 9. Healthy tree ; poor roots.
No. 10. Three young trees ; roots injured, but trees good.

November 4th 1872, or nine months after planting

No. 1. Healthy ; No. 2, apparently dead ; No 3, apparently dead ; No. 4, all leaves gone ; No. 5, apparently dead ; No. 6, leaves gone of upper parts ; No. 7, looks well ; Nos. 8 and 9, ditto ; No. 10, all look well. The above plants were, I consider, a great deal too old to ensure success, as from my short experience I find that from four to six inches high is the proper height at which to plant out Deodar with certainty of success.

Siúrá Plantation.

This is a plot of about 23 acres on the old road to Lamú, and about two miles beyond Siúrá. This plantation was inspected by the Officiating Conservator in August 1872, and the following are his remarks in the Plantation Note Book on its state at that time :—

"In October 1871, a small bed was sown with seed. I inspected the soil here ; all seed failed ; this is below the road In the plantation the new transplants were put in in August 1871, but all failed. This is partly due to faulty size of trees, their bad roots, and their being buried too deep, in some cases 12 inches over proper point My own opinion is that transplants three to four inches high should only be used, as they can be removed without difficulty or injury."

Guári Plantation.

This is a plot (area not given in note book) of land which was originally a forest. Seed (Deodar) was dibbled all over it in 1871, which resulted in a few plants. A nursery was also formed in August 1872, but the Plantation Note Book does not state whether it was sown with seed or not.

Choli Plantation in Lámu.

This place was selected for a plantation, and operations commenced in 1869. Nurseries were formed and the seed germinated freely, but the young plants were all destroyed afterwards by insects. Planting with natural seedlings was also carried on during July and August 1869, but entirely failed. It was again planted in October and November 1871, but again failed, and seed was also sown broadcast but did not come up. In August 1872, nurseries were again formed, and seed sown in them in November of the same year, but the result is not recorded. I visited this site in May 1873. It is most unsuitable for any kind of tree, being the original bed of the river and all boulders. It is now abandoned.

Basú Plantation

This plantation consists of about 50 acres, chiefly on old cultivated terraces. Nurseries were made and seed (Deodar) sown during the winter of 1871. Some of the seed failed, but what did germinate is now from three to five inches high. During the year this plantation was divided into twelve compartments by roads. Two nurseries, one of Walnut and another of Cupressus torulosa, were also formed on this plantation. During February 1873, I first visited this plantation, and on the 7th of the same month I recommenced transplanting it with natural seedlings, and up to 31st march 1873, 8,706 young trees had been transplanted, all of which are now growing vigorously, with the exception of about 25 of the other largest ones, which look unhealthy. The plants were watered as soon as transplanted, and a thin covering of grass put over them to protect them from the direct rays of the sun. New nurseries were also made and sown in February last, and in March the seed commenced to germinate freely.

Dhaur Plantation.

This is a plot of about 50 acres, adjoining the forest of the same name. It has been fenced in and a nursery of Deodar seed was formed during last March. The seed was sown on the 15th of March, and on the 1st April was germinating freely.

Roads and Communications

52. The road from Barmaur to Hamu has been completed with the exception of a few miles. A new bridge was made over the Buddi; but the road could not be finished, as all the available coolies were required for the *bonâ fide* forest works.

Buildings.

A hut for the Forester in charge at Bugtí, and another at Dagraon, were built, as well as a few godowns for stores and powder.

Slides and Riverway.

The Hamu slide was repaired in order to launch the logs remaining in the forests.

The repairs on other slides were trifling, and no new ones were constructed. Jams were cleared out throughout the Rávi and its tributaries, and with the exception of the Bhandhel tributaries, the river is pretty clear of old logs.

Low - Rávi (no report).
Planting.

53. Planting operations have been carried on with varying success at Kálatóp and Bakloh Forests, but as I am not furnished with certain data, I avoid giving figures.

Buildings. Roads and Communications

Several small inspection roads have been made in Kálatóp and Bakloh Forests, and a forest hut was built at Kaintleigh.

Riverway.

The protective weir built by the Canal Department at Madhopúr has neared completion, and will in future prevent the timber going down the canal.

Bías Plantations

54. The Bías plantations have this year been augmented by 24 acres of Deodar planting, and contain now 510 acres of Shísham at Naushera, and 141 acres of Deodar in the upper Kúlú valley. Of the Deodar plantations 10 per cent failed.

Bamboo Plantations.

The Bamboo received from Central India, Mr. Duff reports, was sown in Lohara, Karanpúr, and Dumtál in June 1872. It germinated well in all three places, but whereas the seedlings in Lohara and Karanpúr are now from four to eight inches high, those at Dumtál have run up to two feet.

Some of these seedlings will be removed and transplanted on the north slopes of the forest during the present rains. Small plantations have been prepared for the growth of the Eucalyptus and Mahogany. Ten maunds of Deodar and other pine seeds were collected during last autumn and distributed to several Government officers.

Communications and buildings.

A hut, a shop and godowns for grain were built at Jibí at an outlay of Rs. 796-7-0, and 7 miles of 6-feet wide road were constructed between the forest and the main line, costing Rs. 440.

Manikarn road.

Seven miles of roadway, 8 to 10 feet wide, with an average gradient of 1 in 10, have been completed, and a bridge 173 feet long has been built over the Parbattí.

There remains now only 2 miles of roadway, and the building of two smaller bridges, and the whole of the Parbattí valley will be opened out.

Wire fencing.

The wire fencing for the Kúlú plantations arrived from England at Jálandhar during the month of August, but, owing to the strict quarantine established during the cholera outbreak, it could not be got up during the year.

Mr. Duff's suggestions.

55. Mr Duff's annual report contains some admirable suggestions on transport and timber trade management, but as I am at present preparing a special report regarding establishment of Depóts for scantlings and firewood on all places promising a remunerative market throughout the Province, I shall incorporate Mr. Duff's suggestions about Kángra.

Satlaj Division Plantation.

56. The Shaltú and Nachár Deodar plantations prove a success.

They are fenced in and cleared of grass and weeds.

Bridges.

The bridge over the Púngkhud, washed away during the heavy floods of 1871-72, has been rebuilt; the length of the bridge is 60 feet.

A bridge of 120 feet span has been thrown over the Satlaj, at a cost of Rs. 2,000.

This bridge and a foot-path of 7 miles in length connect the Pundra Buse forests with the left bank of the Satlaj.

River improvements.

Thirty mussak men and twenty coolies were employed to clear the river of jams, and succeeded to relaunch 3,500 logs, losing but one man drowned by the breaking up of a jam.

57. Mr. Brown reports as follows :—

Fuel Reserve Central Division.

"Mr. Sparling leased for one year 500 acres in Bhungálí Chubul, Theh Chor, Barm Puttokey Rakhs of the Lahore district, on condition that Shisham (Dalbergia Sissoo) and Phullai (Acacia modesta) seeds were sown in trenches 15 feet apart The seed was sown during July and germinated, but owing to scarcity of rain and want of care on the part of the cultivators, the seedlings died, and the experiment proved a failure. The several leases were not renewed."

Rakhs Kot Lukput and Tera.

58. The Rukhs Kót Lukput and Tera, 7,871 acres, were sown at the commencement of the monsoons with Shísham, Jhand, Rerú, and Van seeds in trenches 5 feet apart, but this

experiment similarly proved a failure for want of after rains and the absence of irrigation. This work was carried out at a cost of Rs. 2175-13-6, under the immediate superintendence of Mr. J. Fendall.

Grazing stopped to allow of reproduction.

59. All Rukh Tera and a portion of Kót Lukput, which was cleared of fuel during 1870-71, has been closed against grazing to allow of reproduction.

Rukh Shahkargarh.

60. Rukh Shahkargarh, in the Amritsar District, was leased out on the condition that Shísham, Kíkar and Phullai be sown in trenches 15 feet apart. Seed was supplied and its sowing insisted upon under the superintendence of the Forester in charge of the rakh. The seed duly germinated, but, owing to the gross carelessness and total absence of attention on the part of the cultivator, the seedlings died down, and thus this attempt of growing fuel failed.

Grazing stopped in Rukh No. 15 of Multán District.

61. Rukh No. 15 in Multán, containing 31,648 acres, has had 10,000 acres closed against grazing, to admit of the reproduction of the fuel formerly cut.

62. From this division Mr. Wild reports :—

Fuel Reserve, Northern Division. Thinning in Bela Pira Ghaib.

"Thinning has been carried on in Bela Pira Ghaib. When this Bela was made over to us, there were several thickets of young Shísham so dense that it was impossible to penetrate them. These were in September and October last judiciously thinned out, but on account of the trees being from their crowded position so drawn up, it will be necessary to carry out the operation again either this or at the latest next year.

Plantations suffer from ravages of insects.

"The plantations of all ages in this Bela suffer more or less severely from the attacks of a small beetle belonging, I believe, to the Bostrichini, and during the year under report no less than 207 trees died from this cause, and had to be cut out."

Dibbling in seed in Rukh Dhul.

63. In Rukh Dhul of the Gujrát District, some eight maunds of Acacia, Arabica, Zizyphus and Acacia modesta seed were sown around the holes caused by the excavation of old roots, and also in trenches, during the months of August and September.

Sowing around root holes not successful.

On a visit to this rukh in January last, I found that the sowings round the holes were a complete failure, only very few seed having germinated, but I attribute the non-success more to the lateness of the season, and the negligent manner in which the work was carried out, than to anything else.

In trenches better.

That in trenches fared better and came up well, but the great heat will, I am afraid, before long cause most of them to wither away.

In Rukh Marí 200 acres given out on contract.

64. In Rukh Marí, near to Dhul, I gave out some 200 acres, which have generally been under the plough for the last few years, to cultivation, on the stipulation that the cultivators were to sow Dalbergia Sissoo, Acacia, Arabica, and modesta and Zizyphus in lines along with their crops at 9 feet apart, and the Forester of the Range was left to see the agreement carried out.

Visit delayed and work not carried out.

I had to delay my visit to this work till the early part of September, being in the Shahpúr Salt Range during August, and was astonished to find that on my arrival on the 8th only some 10 acres had been completed.

I closed the contract at once, and found other men willing to take it up on the same terms, with whom I made a stipulation that the whole work should be completed in eight days, which was duly carried out.

Contract given out to others.

Thus one could not expect much from such quick and late work as this, and really nothing worth mentioning ever came up. In fact the whole business was a failure, and I am determined never to try contract work again.

Such quick and late work a failure.

65. In Bela Behlolpúr, just below Rukh Marí, some 8,011 willow slips were planted in February and March 1873 along the bank of the river, at a cost of Rs. 4, but consequent on the negligent manner in which the work was carried out, most of them, with the exception of those nearest the water's edge, had dried up at the time of my first visit.

Willow planting in Bela Behlolpúr.

66. I also tried an experimental sowing in Rakh Bachcha, in the midst of the Gujrát Bár, with a good but stiff loam soil and very dry.

Experimental sowing in Rakh Bachcha

Two methods were adopted (*a*) sowing in plough furrows; (*b*) sowing in squares 1' × 1' × 1 at 5' apart. The former is of course by far the cheaper, but does not as a rule work the soil sufficiently, whereas the latter, though more expensive, makes a nice loose bed, into which the young roots easily shoot out, and thus ensure a greater success.

Two methods adopted.

97 acres were done with the plough and 304 in squares, making a total of 401 acres, at a cost of Rs. 102.

401 acres completed.

The average cost of preparing the ground by the two methods was found to be by, the 1st, a little more than an anna; and by the 2nd—Rs. 4-6 per acre.

Comparative cost of two methods

On the whole that sown in squares may be considered as a success. The seeds germinated well, and the young seedlings were helped on by the moisture collecting in the holes, and have now grown to a height of some two feet.

Sowing in squares most successful.

That sown in furrows likewise germinated well, but mostly died down again in a very short time.

Plough sowing died down.

67. In the Jhelam District, planting and sowing operations were confined to rukhs Gurat and Bela Pira Ghaib.

Planting and sowing in Jhelam District.

In the former, one of the best in the district, but stony and dry, situated 18 miles along the Grand Trunk Road to Ráwalpindí, 87 acres were sown in July and August, at a cost of Rs. 44-12-6, averaging 8 anas and 3 pie per acre.

Sowing in rukh Gurat.

The two methods above mentioned were also employed here, but by far the most work was done with the plough.

The two methods also employed.

Almost all came up well, but that sown in furrows suffered severely from locusts, and after that from the heat, so that very little is now left. Those in squares are in this case too by far the best. A good many of the squares are now nice and green, and contain plants of Acacia Arabica, and Zizyphus, about 1½ feet high.

All germinated well, but lines suffered from locusts.

Sanhatta succeeds well.

Some little Dodonia Burmanniana (sanhatta) was also sown, and came up exceedingly well, and is now very flourishing at a height of two feet.

Planting operations commenced in Bela Pira Ghaib in July and continued till September.

68. In July, planting operations were also commenced in Bela Pira Ghaib, but were at first greatly retarded by the excessive moisture of the soil; they were continued till into September.

5,692 Shisham trees planted out.

During this time 5,692 young Shisham trees, averaging from 6 to 10 feet, were successfully transplanted in lines at 8 feet apart, from out of the existing thickets into the open, at a cost of Rs. 97-13-0.

Planted 42,586 willow cuttings.

In February 1873, 42,586 willow and mulberry cuttings, mostly the former, were planted on the bank of a nallah running through the Bela, and took without failure.

Now looking well.

They are now looking exceedingly well, and will I think secure the object for which I planted them, viz., to strengthen the embankment.

They are planted in lines at one foot apart.

The cost of this work amounted to Rs. 27-1-6 only.

Nurseries.

69. In February and March 1873, four nurseries, of about 1 acre each, were prepared in Belas Seila and Pira Ghaib, and sown partly in lines and partly broadcast, with Shisham, to supply material for the present year's workings. They have come up pretty well on the whole, and having been watered regularly by means of temporary wells, the young plants are now ready for removal.

Nallah runs through Bela, and cuts away land.

70. A nallah, which during the rains becomes very much swollen and rapid, runs through the middle of this Bela. During 1871-72 a quantity of land was cut away by the action of this stream, and this year I was determined to do something, if possible, to prevent such damage in future.

Bank sloped and planted.

Accordingly, when the stream was at its lowest, I caused the almost perpendicular bank to be sloped at from 12 feet from the old bank, and the slope afterwards planted with willow slips at 1 foot apart, as mentioned in para. 69 (68 of this Report).

Method successful.

This method has up to the present time, and we have already had a rather heavy flood, acted admirably, even past my expectations. Not in a single instance has the slope been broken; and the willow slips and grass having now taken good root, I have no fear for the future.

More attention should be paid to this branch.

Altogether it is a great success, and I think that more attention should be paid to this branch of forest work, especially with reference to the Belas, the banks of which might, in my opinion, with very little difficulty be made perfectly secure.

Communications and Buildings.

71. During the a year a rest-house was built a Rakh Mári, costing Rs. 440.

Plantation Division. Abstract of control books.

72. I give an abstract of the control books showing the results of arboriculture operations in this division :—

Results of spring transplants, 1872. *at Chunga Manga.*

Serial No.	No. of compartment.	Area of compartment.	Transplanted spring 1872.	Success.	Failure.	REMARKS.
		BLOCK I.				
1	1	88·64	9	9	...	Intersown with Bér, Jand, Sissú and Phulái.
2	2	71·06	16	16	...	
3	8	151·77	16	16	..	
4	9	123·51	13	13	...	
5	10	123·77	45	45	...	
6	11	137·37	46	46	..	
7	50	126·13	8	8	...	
8	51	126·13	5	5	..	
9	52	126·13	3	3	...	
10	53	126·13	4	4	.	
		1,203·64	165	165	...	
		BLOCK II.				
1	25	64·77	14·77	12·77	2	The failures were replenished by sowings of Jhand, Ber and Phulái.
2	26	64 77	64·77	44 77	20	
3	27	64 77	64·77	31·77	33	
4	28	64·77	64 77	42·77	22	
5	30	68·02	48·00	26·00	22	
6	31	68·02	52·00	47·00	5	
7	32	68·02	47·00	45·00	2	
8	34	58·38	36 00	28 00	8	
9	35	58·38	30·00	23 00	7	
10	36	58 38	31·00	21 00	10	
11	37	58·38	38 00	19 00	19	
12	38	58·38	42·00	29·00	13	
13	39	58 38	53 00	33·00	20	
14	40	58·38	43 00	28·00	15	
15	41	58 38	33·00	21 00	12	
16	42	58 38	12 00	12·00	..	
Total Acres.		988·56	671 08	464 08	210·00	
		BLOCK III.				
1	70	99·85	7	7	...	Intersown with Bér, Jhand, Sisú and Phulái.
2	71	101·30	12	12	..	
3	74	145·71	1	1	...	
4	75	140·39	6	6	..	
5	76	93·33	6	6	...	
Total acres.		580·58	32·00	32·00	...	

Replenishing of blanks.

73. The blanks were, however, immediately replenished with Tamarix cuttings and Bér, Phulái and Sissú sowings, which germinated well.

The cultivations of 1872-73 are exhibited in a tabular form, as follows :—

BLOCK I.

No. of compartment.	Area of compartment.	Area completed previous to April 1872.	Area sown from April to August 1872.	Success.	Failure.	Transplanted during spring 1873.	Sown during spring 1873.
1	88·64	48·64	40·00	40·00	...	...	...
2	74·65	52·65	22·00	18·00	4	4	...
3	80·09	13·09	67·00	58·00	9	4	...
4	133·11	34·11	99·00	90·00	9	4	...
5	85·82	15·82	70·00	65·00	5	...	...
6	70·50	10·50	60·00	60·00	...	...	..
7	77·05	32·05	45·00	45·00	...	...	...
8	151·77	51 77	100·00	100·00	...	...	...
9	123·51	53·51	70·00	67·00	3	..	..
10	123·75	43·75	80·00	70·00	10	...	...
11	137·34	38 34	99·00	94 00	5	...	...
12	118·85	...	78·85	78·85	...	40	...
13	118·85	...	118·85	118·85	...	...	...
14	118·85	...	118·85	118·85	...	...	..
15	117·06	...	117·06	117·06	...	...	...
16	117·34	...	117·34	116·34	1	...	...
47	94·17	...	94·17	94·17	...	...	...
48	94·68	.	25 00	25 00	...	69·68	...
49	126·50	86·50	40·00	40·00	...	...	..
50	123·13	51·13	72·00	69·00	3	...	...
51	126·13	85·13	41·00	41·00	...	...	...
52	126·13	99·13	27·00	27·00	...	...	...
53	126·13	101·13	25·00	25·00	...	...	...
54	133·13	127·13	6·00	6·00	...	...	...
	2,687·18	944·38	1,633·12	1,584·12	49·00	121·68	...

BLOCK II.

17	64·77	64·77	...	...	...	...	...
18	64 77	43·00	21·77	15·77	6·00	...	...
19	64·77	34 00	30·77	25·77	5·00	...	...
20	64 77	34·00	30·77	30·77	...	...	...
21	64.77	16·00	...	...	...	48·77	...
22	64.77	...	...	...	...	64·77	...
23	64·77	...	...	...	...	64·77	...
24	64·77	64·77	...	...	...	...	...
25	64·77	64 77	...	...	...	...	...
26	64·77	64·77	...	...	..	...	...
27	64·77	64·77	...	...	...	...	...
28	64·77	64·77	...	...	...	...	...
29	68·02	68·02	...	...	...	...	...
30	68·02	...	...	...	...	20·00	...
31	68·02	68·02	...	...	...	...	...
32	68·02	68 02	...	...	...	...	...
33	58·38	58·38	...	...	...	...	...
34	58·38	58·38	...	...	...	...	...
35	58·38	58·38	...	...	...	...	...
36	58 38	58·38	...	...	...	...	...
37	58·38	58·38	...	...	...	...	...
38	58·38	58·38	...	...	...	...	...
39	58·38	54·38	4·00	4 00	...	...	...
	1,457·98	1,124·34	87·31	76·31	11·00	198 31	...

BLOCK III.

58	103·04	...	...	...	...	8·00	...
59	109·79	...	20 00	20·00	...	83·00	...
60	109·85	...	...	...	...	95·00	...
64	112·45	...	...	...	...	...	67·00
65	118·66	...	...	...	...	26·00	92·66
69	98·75	...	40 00	40·00	...	...	...
70	99·85	10·00	89·85	80·85	9·00	...	...
71	101 30	17 00	84 30	70·30	14·00	...	...
72	80·37	43·00	37 37	35·37	2·00	...	...
73	115·22	56·00	59·22	45·22	14·00	...	...
74	145·51	75·00	70 51	60·51	10 00	...	...
75	140·39	65·00	75 39	75·39	...	...	...
76	93 33	43·33	50 00	50·00	...	...	...
	1,428·51	309·33	526·64	477·64	49·00	212·00	159·66

From April till June only Sissú was sown, but during the month of July Ber, Phuláí and Jhand were intermixed.

Success of spring sowings attributable to regular water-supply.

74. The unvarying good success of the spring and summer sowings is to a great extent attributable to the regular water-supply throughout the year. The Canal Officers, as well as Mr. McDonell, Assistant Conservator, who managed to keep the entrance of the canal free from logs, deserve our acknowledgment.

Statement showing distribution of water-supply during 1872-73.

Serial number.	Number of compartment.	Area of compartment.	Number of times watered.	REMARKS.
		BLOCK I.		
1	1	88·64	6	
2	2	74·15	6	
3	3	80·09	6	
4	4	133·11	5	
5	5	85·72	5	
6	6	70·50	6	
7	7	77·05	6	
8	8	151·77	5	
9	9	123·71	3	
10	10	120·77	4	
11	11	137·37	8	
12	12	118·85	10	
13	13	118·85	10	
14	14	118·85	10	
15	15	117·06	5	
16	16	117·34	6	
17	47	95·17	3	
18	48	94·68	3	
19	49	126·13	4	
20	50	128·13	5	
21	51	126·13	6	
22	52	126·13	6	
23	53	126·13	5	
24	54	133·02	5	
25	55	85·56	3	
26	56	86·09	3	
	Total ...	2,861·00	...	
		BLOCK II.		
1	17	64·77	3	
2	18	64·77	4	
3	19	64·77	4	
4	20	64·77	4	
5	21	64·77	2	
6	24	64·77	4	
7	25	64·77	4	
8	26	64·77	4	
9	27	64·77	4	
10	28	64·77	5	
11	30	68·02	2	
12	31	68·02	4	
13	32	68·02	5	
14	33	58·38	5	
15	34	58·38	4	
16	35	58·38	5	
17	36	58·38	3	
18	37	58·38	4	
19	38	58·38	5	
20	39	58·38	7	
21	40	58·38	6	
22	41	58·38	5	
23	42	58·38	8	
24	43	58·38	4	
25	44	58·38	4	
26	45	58·38	4	
27	46	58·38	3	
	Total ...	1,669·08	...	

BLOCK III.

Serial number.	Number of compartment.	Area of Compartment.	Number of times watered.	REMARKS.
1	59	109·79	3	
2	69	98 75	6	
3	70	99 95	6	
4	71	101 30	6	
5	72	80·37	6	
6	73	115 11	7	
7	74	145·45	7	
8	75	140 35	7	
9	76	93·34	7	
	Total ...	984 41		

Bér and Phulái sowings.

75. Many of the Bér and Phulái sowings froze down to the ground, but have already sprouted again. Sowings of these trees are invariably affected by frost during the first year of their existence.

Tamarix cuttings.

Fifty per cent of the Tamarix cuttings of spring 1872 died down to the roots during the winter. Willow cuttings along the water-courses all do well

Weeding.

All sowings were weeded during July and August. The cultivations of spring 1872-73 (January, February and March 1873) include 4,36,151 Tamarix cuttings, and two nurseries of Tamarix cuttings containing 33,200 young plants. Most of the new transplants and cuttings have thrown out shoots, and some of the sowings have already germinated.

In the forest-house compound and along the roads 1,073 rare trees are growing, including 416 Eucalyptus and 209 fruit trees.

Thinning.

76. Two-years-old trees were thinned within the last few months to 5 feet apart, and seedlings to 2 to 2½ feet.

In Block I ... ... 565 acres.
In Block II ... ... 187·92 acres.

The material derived from thinnings is carried outside the plantation and stacked.

Trenching.

77 Trenching was done to the extent of 54,00,000 cubic feet, and the area will be completed according to the working plan by the end of April 1873.

Arrangements for irrigation were made by the Canal Department, including the building of an outlet at Gandián 4′ × 6′. and 7 miles of rájbuha (about 13,00,000 cubic feet). A double-barrelled mogah out of the Váhn rájbuha, two syphons under Zamindárs' water-courses, and a small masonry head, were built by our Department.

Thirty-four and a half miles of new roads were laid out, and 43 miles of roads cleaned; also 51 miles of inspection paths were cut through the different compartments.

Alteration in working plan.

78. A slight alteration was made in the working plan. The position of 600 acres land to be cultivated during the spring was shifted on account of cheaper irrigation works. This entails no alteration in the figures of the working plan.

Ravi Plantation.

79. Jhand was sown in 20 acres, and 17,000 Tamarix cuttings were put out at five feet apart. The result was fairly good, and we shall be able to cover the whole area by means of such small and inexpensive cultivation.

Khanwa Plantation.

80. Four thousand and five hundred Tamarix cuttings were planted, of which 2,000 look healthy. The old trees which are scattered about are flourishing. We watered about 400 acres of this plantation, which is, in my opinion, too far away from the line of Railway, not only as regards supervision, but as regards future sales.

Shahdera *cum* Jugian.

81. Blanks were filled up with Kíkar, Sissú, Bér and Jhand sowings, and on places covered with high grass 6,000 transplants were put in. The cultivation succeeded fairly well, and only few blanks remain to be filled up.

Eleven thousand six hundred and forty eight transplants were put in to fill up a sandy portion of 12 acres, which I had not cultivated previously. The soil of this piece is so bad that I was doubtful if it would not be advisable to leave it uncultivated; but as we find many such perfectly sandy places in our sailába land, I preferred to try what could be done with very careful cultivation, and I shall report separately on this operation. The adjacent Commissariat rakh, Mahmúd Bútí, caught fire. The plantation was in the greatest danger, but was saved through the exertions of Mr. Lister and the native establishment.

Jhoke and Sadhanwali.

82. Two and-a-half acres of nurseries, with four wells, were laid out for transplants. During the rainy season they were flooded, and only succeeded partially.

Two hundred acres were sown, flooded and destroyed. They were resown and again flooded. After the flood subsided, they were once more sown, and succeeded at last over an area of upwards of 150 acres.

Of 1,14,514 transplants, about 1,00,000 are doing well, and 6,250 willow cuttings are progressing.

Nurseries have been laid out in Jhoke for next year's cultivation.

Kathala Plantation

83. Kathála is the place selected for an extensive plantation to provide the Panjáb Northern State Railway with fuel. No Government land was available, and I was ordered to select such private land in the vicinity of the Railway line as I considered best adapted for arboriculture operations. The land has been gazetted, but no reward has been fixed as yet; nevertheless, we began work on the land on all the different soils, and the cultivations succeeded.

Sixty acres at Goráya were sown in July with Sissú at seven feet apart.

The soil near the village is loam; near the river it is light loamy sand; on both soils the sowings germinated well, and the young plants look healthy and flourishing. Though the seedlings are only four to five inches high, they have thrown out roots of double that length.

Fourteen acres were filled with transplants at 7½ feet apart, which are doing well, and have thrown out vigorous shoots, the average height being two feet.

In January and February we planted 61 acres with Sissú transplants, which seem to do well.

The nurseries have been re-sown for rain transplanting, and when that time comes, I hope to be in possession of the entire area of land.

The forest bungalow at Kathála was finished, as well as a place for the Sub-Overseer.

Wazirabad, or Tathi Faqir-ulla Plantation.

84. Last year's cultivation in this plantation, with the exception of 50 acres, was destroyed by floods, as mentioned in the Report of 1871-72.

All blanks extending over an area of about 200 acres were filled up with Sissú transplants, which are doing well, though they were flooded again for three days. Sowings would have been lost under these circumstances.

Kikranwalla.

85. The plantation has been demarcated and boundary disputes have been settled. The reproduction of Kíkar is excellent.

A small Sissú nursery has been started with a view to interplant this tree.

Nag Plantation.

86. This year 20 acres were planted with Tún, and succeeded well. Fifty acres Kallár land have been given to Zamíndárs for cultivation.

The plantation will be thinned in the course of next month. Ten thousand Tún plants are ready for transplanting. Pigs destroyed and damaged a good many Eucalyptus.

Jalandhar Plantation.

87. This plantation is stocked, with the exception of seven acres sand.

Phillour Plantation.

During the year the plantation was thinned for the first time.

Ludianah Plantation.

The plantation was thinned, and 2,000 willow cuttings put along the old river bed.

Sarangwal.

Sarangwal is only a rakh, and no work was done in it.

Jagadri.

88. No work was done here. It will be recultivated this year if I can spare the time and supervision.

Dehli Plantation.

89. Fifty acres of Kíkar of the first sowings, about 10 feet high, were thinned. Two hundred and fifty acres were sown, but destroyed by the floods. After being resown, they succeeded.

Two thousand Tún trees, 2 years old, were killed by the floods. Willows, Kíkar and Jáman are the best to resist.

Two lakhs willow cuttings were put in along the nallahs, and 17,000 Sissú and Tún were planted in summer. Five acres at Andaulí were cultivated with winter transplants of Mango, Sissú, Tún &c. Seven acres of new land were thrown up by the river.

All blanks in this plantation amount to 28 acres bad land; hence it may be regarded as completed.

The Zamíndárs of Chandraul are willing to exchange 145 acres, which lie between the two portions of the plantation, against the same amount of land on the old parade ground.

Tilouri Plantation.

90. In this plantation 300 acres were cultivated by Ibráhím; one hundred and fifty acres of this succeeded and looked well when I last saw it.

Ambalah Plantation.

Only one nursery has been laid out; but as the well which supplied it with water has dried up, we cannot sow before the rains.

91. Planting material has been given away without charging for it. Ten thousand trees were given to the Zamíndárs near Changa Manga, more than 10,000 to the Panjáb Northern State Railway, and some to private persons. A nearly unlimited supply (5,00,000) of transplants was advertized as available at Changa Manga. As Sissú plants, if watered, can be transplated without earth during the winter months, I am surprised that no body took advantage of our offer, as 50,000 can be loaded on one Railway wagon, and might, packed under our supervision, have been transported any distance without damage.

92. The following is a statement showing total income and expenditure in each plantation for 1872-73 :—

Name of Plantation.	Total expenditure in each Plantation.			Total Income in each Plantation.			REMARKS.
	Rs.	A.	P.	Rs.	A.	P.	
Changa Manga	54,851	12	7	7,762	15	8	
Kháuwah . .	939	1	4	191	0	0	
Ráví	376	0	0	191	0	0	
Tera	163	10	0	181	4	0	
Rodesháh . .	68	0	0	...	..	.	
Jugián-*cum*-Sháhdera ..	2,120	13	2	2,249	14	9	
Sándhanwálí and Jhoke ...	3,300	13	9	1,699	6	4	
Kathála	6,288	5	6	...	...	..	
Wazírábád or Tathí Faqír-ulla .	860	7	0	292	12	0	
Kíkráwálla	507	11	3	422	12	0	
Nág	1,373	12	10	576	2	3	
Jálandhar . . .	66	2	0	61	0	0	
Phillour .	309	13	10	429	2	0	
Ludiánah ..	287	1	9	665	8	5	
Jagádhri	156	15	0	112	8	0	
Dehli .	2,634	15	6	661	12	0	
Tillaurí	467	1	4	525	11	10	
Sarangwál	.		..	250	8	0	
Ambálah . ..	82	11	0	...		...	
Experiments	209	1	6	...			
Divisional expenditure ...	29,960	5	7	...		.	Includes salaries of all the gazetted Officers, Office Establishment, Travelling Allowance, Office requisition, contingencies, and cost of Eucalyptus seed.
Total ...	1,05,025	0	11	16,112	15	3	

N. B. Rs. 15,479-7-3 have been deducted out of the Total Expenditure incurred during the year, on account of recoveries against Expenditure.

Flood Register on rivers.

93. Before leaving this section, I beg to insert a register of floods compiled from the reports of the River Divisions.

FLOOD REGISTER.

		JHELAM.		CHINAB.		RAVI.		SATLAJ.	
Month	Date	Jhelam	Khágán	Upper	Lower	Upper	Lower	Upper	Lower
June	24th	2 floods 24 hours, during June Bridge of Boats across Jhelam carried away.	...	...	...	...	...	Whole river affected 5 hours, 9½ feet	
"	26th	...	...	Affected whole river, 5 days	...	...	...	...	Near Biláspúr 9½ feet
"	27th								
"	28th	...	...	...		...	...	Whole river affected nearly 20 feet, 3 hours	
"	29th								
"	30th								
July	1st	...	...	...		...	...	Whole river affected nearly 11 feet, 3 hours	
"	2nd	...	...	...		...	...	Do.	@ 10 A. M. 10 feet
"	3rd								
"	4th	...	...	...		2 hours, 8 feet			
"	5th								
"	6th								
"	7th	2 floods, 10 hours duration during July	...	...		...	...	Whole river affected 6 hours, nearly 12 feet	
"	8th	...	...	...		No very heavy floods reported	...	Do. during night heavy flood. 10 ½ feet	
"	9th								
"	15th								
"	17th	...	...	...		...	...	...	From Nehla 3 hours, 10 feet
"	21st								
"	26th	...	...	...		...	...	...	From Nehla 5 hours, 10 feet
"	27th								
"	28th	...	...	...		...	...	Whole river affected 11 hours, 12 feet	
"	29th	...	...	...		...	...	Do. 1½ hours 11 feet.	
"	30th	...	...	...		...	...	Do. during night, 11½ feet	
"	31st								
Augt.	1st	...	...	...		...	...	Do Do., 20 feet	
"	2nd	...	...	...		...	...	Do. Palhan and below, 10 feet.	
"	3rd	...	...	...		...	...	Whole river affected 3 hours, 10 feet	
"	4th	2 floods, 8 hours duration during August							
"	5th								
"	6th								
"	7th								
"	8th								
"	10th								
"	11th	...	...	...		...	...	Whole river affected at 12-30 P. M. 10 feet	
"	12th								
"	15th								
"	20th								
"	21st								
"	22nd								
Septr.	1st								
"	2nd								
"	3rd	2 floods, 7 hours duration during September							
"	4th								
"	21st	...	...	...	...	...	...	...	Near Rámpúr 3 hours, 9 feet
"	22nd								
"	23rd								

No heavy floods reported.

SECTION V.—YIELD AND WORKING OF FORESTS.

River Divisions.

a. Felling and Launching.

Fellings for 1872-73.

94. During the year the fellings, although as lenient as possible, exceeded those of 1871-72, the Indus Valley State Railway having called for supplies. The following is a statement of those undertaken :—

River.	Deodár.	Pinus excelsa.	Abies Smithiana.	Pinus longifolia.
Jhelam	448	20	...	...
Chinab	851 dry trees	...	...	...
Rávi	39 dry trees	24	.	...
Biás	1,975	...	...	...

Logging and Launching.

95. As in last year, logging and launching was the most extensive work carried on under this head. The following, which is only a more detailed form of Statement No. 11, shows fully the work completed in each Division :—

RIVER.		Logs left in Forests from former years.	Logs obtained during year.	Logs total launched,	Logs total left in Forests
Jhelam ...	Deodár	5,114	4,296	7,202	2,208 D.
	Pinus excelsa	1,702	935	1,293	1,344 P Ex.
	Pinus longifolia	141	...	141	...
Chinab		...	16,702 A.	16,702	...
Rávi		20 C. D. 459 A S.	11,139	8,468	3,150
Biás		770 D.	6,328 D.	3,854 D.	3,244 D.
Satluj		1,654	23,609	6,585 B.	18,678 C.

A —Wind-falls and dry-trees. B.—Wind fall Deodar 5,018 ; cut into sleepers 1,567. C.—784 of all sorts ; 17,894 sleepers cut in forests.

Percentage of breakages.

96. The information furnished with regard to percentage of breakages is very meagre. The Chináb reports 5 per cent the average for all localities. No other Division mentions the subject at all, with the exception of Mr. Mackay, on the Rávi, who says that the logs being in places where it is impossible to make effective slides, no correct estimate can be ascertained.

Waif.

97. Logs were marked as waif on the different rivers as under :—

Jhelam ...	1,269	528 1st class Deodár. 7 2nd class ,, 711 1st ,, Pines. 23 2nd ,, ,,
Chináb ...	513	310 Deodár. 213 Pines.
Biás ...	815	

For the Ráví there is no report, and the Satlaj has no waif.

The figures for the Biás include, besides, *bonâ fide* waif, logs forfeited by the late Wazír Gosháon, and old logs, all of which were inlcuded in former year's countings, but not entered in the launch register.

Sleeper operations.

98. Of the 1,975 Deodár felled on the Biás, 1,877 were sawn up in the forests into 1,07,566 single and 11,585 double metre guage sleepers and scantlings, making a total of 119,151 sleepers. Like work was also undertaken on the Chináb and Satlaj for the Indus Valley State Railway. On the former 6,077 were prepared and made over, while on the latter Colonel Batchelor had a gang of 100 men at work at Náchár, and completed 20,000 during the year. Another gang was also employed on the "Transit Depôts" from Nehla to Rúpar, turning out 12,000 sleepers.

Further supply furnished on old contract.

99. A further supply of 5,300 sleepers was furnished at Phillour by the European contractor on the arrangement made by Mr. Allan, mentioned in last year's Report.

Carriage of sleepers prepared on the Biás.

100. Of the sleepers prepared by Mr. Duff, on the Biás, 95,436 have been conveyed to the banks of the Kunán stream, an average distance of seven miles, and will, together with as many more as can be landed at Kunán by September, be branded and launched at the end of the heavy floods of 1873-74, and may be expected to reach Wazír Bhúlar Depôt in March 1874.

Abstract of sleeper work.

101. The sleeper work for the Indus Valley Railway executed during the year under report may be thus summarized :—

River.	Sleepers.
Satlaj	32,000
At Phillour	5,300
Biás	1,19,151
Chináb	6,077
Total ...	1,62,528

Total 1,62,528 sleepers cut up to the metre guage. Besides these some thousands of logs have also been cut into seven feet lengths for the same guage.

Special felling in Kangra and Gurdáspúr discontinued Contractor failing.

102. The special felling of Pinus longifolia in the Kángra (Núrpúr Forests), and in Gurdáspúr was discontinued, and attention paid to the transport of the logs and sleepers thus obtained. The contractor, who had undertaken the work, failing in the terms of his agreement, it had to be carried on by direct agency. Thus

Work carried on by direct agency.

from the Gurdáspúr tract 1,937 sleepers have been brought into depôt, and from the forests above Núrpúr 7,572 logs, equalling 72,676 cubic feet, the work being carried out under the superintendence of Messrs. Palmer and Calthrop.

Contractor's case.

103. Sikandar Khán, the contractor on this work, has threatened to take legal action to recover supposed losses incurred by our stopping his contract, but it is the opinion of my predecessor, as well as of the Government Advocate and myself, that not only are his claims untenable, but that we have good claims against him for compensation for non-fulfilment of contract, and it has been recommended that the case be put to arbitration.

Neglect to register security bond.

104. Unfortunately the security bond lodged by the contractor was omitted to be registered, as has already been remarked on by Government. I can only account for this seeming neglect in the severe illness and departure of Mr. Browne to Europe just at the time the agreements were being drawn up. It may now be difficult for us to recover the large amount of outstandings, even by legal action.

Fellings in unreserved forests of the Biás.

105. The fellings in unreserved forests of the Biás were, Mr. Duff reports, as follows :—

Kúlú, including Wazír Rúpi.

Deodár	50
Pines	7004
Hard wood	44
Total	7098

Plach and Seoráj.

Deodár	1
Pines	1,630
Total	1,631

making a grand total of 8,729 trees, representing timber supplied to Zamíndárs for building purposes, to shop-keepers of neighboring towns for like purposes, to engineers and contractors for works, and to merchants for export.

Permit-holders or free grantees.

106. Before leaving the river forests I propose to give an account of the number of trees felled for permit-holders or free-grantees.

Jhelam.

107. On the Jhelam numbers of trees were felled, the Zamíndárs receiving half the proceeds thereof, which are treated under head B.

Chináb.

108. On the Chináb the following trees were granted on permit :—

6 Deodar under	... ...	9½ feet girth.
10 Pinus excelsa	... ...	8 " "
50 Dead trees	... ...	2 " "

In Chamba no fellings are reported by this Division.

Rávi—Chamba.

109. On the Rávi Mr. Mackay reports 225 Deodár as the total of trees cut by the inhabitants of Chamba on permits granted by the Superintendent.

Biás.

110. In the Biás (Kúlú Forests) the following trees were given gratis to land-holders.

For repairs to temples	14	Cedrus deodára.
Do.	1	Juniperus excelsa.
For building Houses	2,180	Pinus excelsa.
Do.	45	Abies Smithiana.
Do.	5	Picea Webbiana.
For Ploughs	2	Marlea begonifolia.
Total	2,247	

Bassáhir.

111. On the Satlaj 5,133 trees were granted to right-holders of Bassáhir as under :—

Pinus excelsa over 4 feet in girth	753	trees.
" under " "	4,380	"
Total ...	5,133	"

b. **Transit Management.**

Transit on Jhelam.

112. Gangs of men were kept up on the Jhelam during the season for the purpose of clearing the banks of stranded timber who were also deputed to mark all wind-falls found on the river, that had been carried out of the freshets, without marks.

The transit depôt return for this river shows 80 Deodár and 567 Pines as being on hand at the close of the year.

Chináb Transit Depots.

113. The transit depôts on the Chináb are unchanged. The statement below shows a total of 9,420 logs = 1,75,588 cubic feet and 8,067 sleepers as being in these depôts.

No report from Rávi.

114. No report having been received from the Rávi, the transit figures have been compiled from office records.

Biás Transit account.

115. On the Biás, Mr. Duff reports 3,344 logs as counted in transit between upper launch and Wazír Bhúlar on 31st March 1873, as against 5,428 on the same date of 1872. The figures are as follows :—

	Logs.
Counted in transit on 31st March 1872 ...	5,428
Launched during year, as per register ...	900
Total	6,328
Received in sale depôts (out of above)	3,084
Counted in transit between upper launch and Wazír Bhúlar on 31st March 1873 ...	3,344
Total	6,428

showing an excess of 100 logs in transit.

The timber in transit extends over 326 miles of river; and until very old and unregistered logs be got rid of, it is impossible to arrive at any great degree of accuracy.

New Transit Depôt at "Hora."

116. In addition to the old transit depôt at Naushehra, 79 miles below Nadown, another has been selected at "Hora," 58 miles below Nadown, and 2 miles distant from Pándain Bamboo Depôt. It is most favorably situated just above the entrance to a net-work of small branches of the river called Bumar.

Mr. Duff reports.

117. Mr. Duff reports further on timber transit as follows:—

"I intend to sell timber at Nadown to Government Officers only, as it is most difficult to prevent pilfering by native merchants who purchase at Nadown and raft down-stream A favorite trick at one time was to cut the logs loose from their rafts during transit, and keep hanging about the river banks for months on pretext of searching for lost timber. Seeing this an order was given prohibiting search being made for stray timber. All concerned were warned that, in the event of rafts breaking up in course of transit, information should be given to the nearest Forest Officer down-stream, who would collect the missing logs, and convey them to Wazír Bhúlar Depôt at the owner's expense. The monies so realized appear in the accounts as 'salvage.'

"The rafting from Kúlú to Nadown is contracted for by a native, and Mr. Healy has undertaken a contract to raft timber from Nadown to Wazír Bhúlar, and to keep up gangs of catchers at different points on the river during the monsoons.

"Two hundred and eighty rafts, the property of natives, were checked at Naushehra during the past year.

"The rafts contained:—

37,333 Bamboos.
21,718 Chíl scantlings.
14,848 Mixed timber.

"A man could not be spared for this work alone, and doubtless some rafts passed unchecked.

"No proper command can be had of the river unless every raft be checked. Every merchant rafting wood on the river should be supplied with a certificate of sale from the vendor, and a river pass from the nearest Forest Officer on the river, and no rafts should be allowed to pass the check depôt until the timber has been examined. This system would check fellings in Jaghírs as well as those made in cultivated lands by proprietors."

No alteration on Satlaj.

118. On the Sutlaj no alterations are reported.

c. Work of sale depots and sales.

119. The arrivals in all sale depôts are detailed in Statement 24.

Jhelam.

120. The site of the Jhelam Depôt has remained unchanged. A portion of the depôt has been taken up for the bridge of boats in addition to that formerly taken for Railway material depôts. The area of the present depôt is too small for the requirements, and a proposal will be forwarded to take up some of the cantonment land.

Chináb.

121. The temporary sale depôt at Sáman has been cleared, and abandoned, the transactions with the Northern State Railway being completed. At Multán it has been found necessary to establish two Depôts, one at Rájghát for the flood season, and another at Bandaghát for the winter months.

Ráví.

122. On the Ráví no changes in the Depôt sites have taken place. The Darogha of the bridge of boats at Shahdera levied a tax on the logs brought into that Depôt, thus impeding timber trade. The question has been sent up for orders in a separate report.

123. No changes have been made in the sale depôt. I here quote Mr. Duff's remarks on sales :—

Bás.

"Department Public Works Officers generally are inclined to purchase from native merchants, in preference to dealing with us direct,

"The only reasons I can ascribe for this are—

(*a*). The fact that some people prefer dealing with those whose prices (nominal) it is possible to reduce.

(*b*). That natives will land the timber wherever required.

(*c*). That native subordinates of the Department Public Works, for reasons best known to themselves, frequently put difficulties in the way of purchases being made from Government depôts.

"I have given some attention to this subject, and have reason to believe that in one or two instances Department Public Works Officers are prepared to admit that there is no saving to them in dealing with natives. What we require is men in charge of our depôts who are willing to assist in procuring carriage, &c., and have studied the market rate fo, carriage and material used in the transport of timber by land or water.

"The Railway rates and rules regarding the unloading of trucks, &c., prevent that mode of carriage being employed.

"Timber inland is nearly always transported on country carts at so much the 100 tassús.'

124. The principal purchasers of Deodár timber are—

Principal purchasers of timber.

Indus Valley State Railway	... =	11,353	cubic feet.
Ditto 6,662 scantlings	... =	14,830	,,
Sindh Panjáb and Dehli Railway	... =	8,408	,,
Department Public Works Amritsar	=	4,088	,,
Ditto Jálandhar	... =	12,000	,,
Private Persons ...	... =	32,333	,,

Satlaj.

125. No changes in the depôt sites took place on this river.

Auction sales.

126. Auction sales were held in most of the depôts to clear off the old and decaying timber.

B. Forests of other Export Lines.

127. In the Hazárá Forests the following trees have been cut during the year, and half the seignorage paid to the Zamíndárs, leaving a revenue to Government of Rs. 3,173 :—

Hazárá Forests.

842 Pinus excelsa.
18 Quercus dilatata.
43 Taxus baccata.
72 Pinus longifolia,
27 Picea Webbiana.
74 Quercus incana.
18 Pavia Indica.
170 Prunus Padus.
5 Celtis Caucasica.
20 Fothergilla.

128. The town of Rawálpindi consumes about 7,000 maunds of fuel per mensem, not including the demand of the Public Works Department and the Cantonment. The old permit system has been done away with, and the fuel is now sold in depôts. The system though is in great discredit with the natives, as it checks the indiscriminate pilfering. It is a step in the right direction, and will be continued with slight modifications.

Rawálpindi.

Public Works and Cantonments.

129. The supply of the Department Public Works and Cantonments was given to a contractor, and has been satisfactorily carried out.

Northern and Central Fuel Reserve Divisions.

130. The supply of fuel to the Northern State Railway from the rakhs of these Divisions has decreased during the year 1,44,833 maunds; the delivery during 1871-72 amounting to 2,08,587 maunds against 63,754 during the year under report.

In the following statement of transactions, that delivered by the Central Division was obtained from the Gujránwála, and that by the Northern from the Gujrát rakhs.

Months.	Division.	Balance on 1st April 1872.	Received from Rakhs in maunds.	Delivered in maunds.	Closing balance.	Amount realized on deliveries.		
						Rs.	A.	P.
1872.								
April	Central ...	3,826	...	...	3,826	...	...	...
	Northern ...	5,033	13,839	13,439	5,133	4,636	7	0
May	Central ...	3,826	6,000	4,161	5,665	1,587	8	11
	Northern ...	5,433	8,767	11,135	3,065	3,836	4	6
June	Central ...	5,665	7,000	8,861	3,804	3,169	7	10
	Northern ...	3,065	1,720	1,720	3,065	601	3	2
July	Central ...	3,804	...	...	3,804	...	...	...
	Northern ...	3,065	5,287	6,211	2,111	2,204	10	3
August	Central ...	3,804	.	...	3,804	...	...	...
	Northern ...	2,111	613	...	2,724	...	...	
September	Central ...	3,804	...	...	3,804	...	...	...
	Northern ...	2,724	...	...	2,724	...	...	...
October	Central	3,804	5,000	4,176	4,628	1,503	7	10
	Northern ...	2,724	1,128	...	3,852	...	...	...
November	Central ...	4,628	...	...	4,628	...	...	...
	Northern .	3,852	3,190	2,947	4,005	972	8	1
December	Central ..	4,628	...	...	4,628	...	...	...
	Northern ...	4,005	1,874	195	5,684	..	...	..
1873.								
January	Central ...	4,628	2,108	5,195	1,541	1,745	11	11
	Northern .	5,684	...	5,574	110	1,929	9	7
February	Central .	1,541	...	.	1,541	...	...	...
	Northern ...	110	...	110	...	...	...	...
March	Central ...	1,541	...	...	1,541	...	...	...
	Northern ...	...	...	...	...	...	...	...
	Total Deliveries ...			63,754	..	22,186	15	¼

The Assistant Conservate Fuel Reserve, Northern Division, struck off 195 in December 1872, and in February 1873 110 maunds, making a total of 305 maunds struck off on account of dryage.

From the Central Fuel Reserve Divison fuel was also supplied to contractors, mostly for the use of the Sindh, Panjáb, and Dehli Railway as follows :—

District Montgomery, rakh 15		1,000 acres.
,, Lahore—		Whole area.
Rakh Ladoky		
,, Harsa		
,, Gúmán		
,, Sháh Enant Dhola		
,, Modua		
,, Béth		
,, Thatti Aval		
,, Dahúrí		
,, Amritsar, rakh Bahúí.		

The fuel from the two latter rakhs was supplied to the Civil Works Division, Amritsar, for brick-burning.

Grazing leases.

132. The grazing leases in the Northern Fuel Reserve Divisions show an increase of Rs. 17,760, and those of the Central, Rs. 16,956.

Lower Rávi—Kalatóp.

133. The yield from this forest not having been separately reported, I am unable to state the figures.

Bakloh and Kaintli.

No cuttings of any extent were executed in the Bakloh Forests, nor at Kaintlí.

Bás Division Bamboo Forests.

134. 4,13,691 bamboos cut in the Khánpúr Forest were sold in the Pandárí Depôt, and realized Rs. 7,531 ; 61,575 from the Damtal Forest realized, Rs. 760; 768 were given gratis to land-holders at Khánpúr, and 5,275 to Zamíndárs of Núrpúr.

Chil Forests.

The fellings in these forests were during the year as follows :—

Núrpúr Tahsíl	Pinus longifolia	311
	Hard wood	378
	Total	689
Derah Tahsíl	Pinus longifolia	111
	Hard wood	207
	Bamboos	1,950
	Total	2,268
Haripúr Tahsíl	Pinus longifolia	200
	Total	200
	Grand Total	3,157

Satlaj Division, Kalésar.

135. The following is a statement of the Kalésar Forest operations.

Kalesur Forest operations.

Remained in depôt on 1st April 1872—

Sál Ballis	...	...	...	10,512 pieces
Fire-wood	...	...	...	10,000 maunds
Cut during the year	...	...	...	*Nil.*
Sold during the year		...	...	
Sal Ballis	...	...	...	"
Fire-wood	...	...	...	1,331 maunds.

Remained in hand at close of year—

Sál Ballis	...	...	...	10,512 pieces.
Fire-wood	...	...	...	8,667 maunds.

The sales at Kalésar were but trifling, and grazing revenue shows a decrease, which Colonel Batchelor attributes to the refusal of way through the property of the Kalésar Pathâns, as mentioned in para. 26.

CHAPTER II.—GENERAL.

FINANCIAL RESULTS.

Value of year's transaction.

136. The year's transactions show a minus balance of Rs. 38,170; and even if I add the increased value of the stock in the beginning of the current year, which includes the timber in transit, the profits of the year amount only to Rs. 39,970.

This is unsatisfactory; and, considering the decrease of the capital value of the Government forests, I must acknowledge that the Department has worked at a loss.

Amounts expended on forest improvements.

137. Rs. 79,700, however, have been spent on forest improvements, which must be set off against the loss of capital as remunerative expenditure. Rs. 39,500 have further been expended on permanent works, such as Surveys, Communications and Buildings, and cannot be reckoned in full against this one particular year.

Indus Valley State Railway arrangements not completed, or the result would have been a profit balance.

138. Had the arrangement for the supply of the Indus Valley State Railway been completed, and the prices of wood made over to them settled, the results would show a profit balance against an equal decrease in the value of stock.

Net profits out of proportion to expenditure.

139. Under any circumstances, however, the small net profits are out of all proportion to the large expenditure. This may, however, be accounted for as follows:—

1stly. In the difficulty of the transport of Deodár timber out of the further and further receding forests, increasing in a higher degree than the price of Deodár timber in the plains. At the commencement of the operations for the State Railway in this province, Government bought, through this Department, large quantities of Deodár at a comparatively high rate.

The contractor was under the impression that much larger quantities would be immediately required, which led to considerable fellings of Deodár trees in the more favorably situated Cashmír forests. The consequence was a sudden over-stocking of the market, waste of timber by deterioration, and a slackness of timber trade, especially in the smaller lengths.

2ndly. In the competition of private contractors in the fuel trade, who supply the Railway and Public Works at rates which, under most circumstances, it would not be profitable to accept for the Department.

The supplies, however, are made at the cost of the ryots and the well-being of the country. I have already, in a former report on the fuel-supply, noted that Mela Rám, a fuel contractor, buys wood felled and brought on to the Railway line at two to three rupees per 100 maunds, causing the destruction of vast communal and private rakhs, all the trees being stubbed out with the roots.

3rdly. In the numerous rights resting on the different forests, which in most cases almost prohibit a local market.

The revenue from rakh land leased for cultivation has, moreover been re-transferred to the Civil authorities.

Means of placing expenditure and income on a more satisfactory footing.

140. The only means I see of placing the balance between expenditure and income on a more satisfactory footing is—

1stly. *Primâ facie* restriction of expenditure, especially in the matter of timber transport, by improved communication and system. I am at present preparing a statement of cost and contract rates on the different rivers, which shows a somewhat startling difference in the amount expended under the same head in the different Divisions.

2ndly. Utilization of pines other than Deodár by impregnation. The supply of Deodár is diminishing so rapidly, and though now every means are taken to reproduce this valuable tree, the time is not far distant when we shall be forced to fall back for a long period on the supply of other pines. The whole is only a question of time.

3rdly. The regulation and, if possible, restriction of private timber and fuel trade.

After a conference with Mr. Baden Powell, the Officiating Inspector General, I hope to lay a scheme regarding this subject before Government, including the establishment of Government timber and fuel depôts at the larger cantonments and cities.

And lastly, but of great importance, the speedy settlement and regulation of all forest rights.

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* The timber and fuel trade, as conducted at present, causes constant pilfering of Government timber and only too often the permanent destruction of private and communal rakhs, and of Hill forests beyond our boundary, which by their position must greatly influence the climate of this Province.

141. A sudden decrease of expenditure and increase of income cannot, however, be expected, and the economical value of the strict conservancy of those forests altogether under Government management, must serve as a set-off against the present large expenditure, and be a guarantee for future more favorable financial results.

Decrease of expenditure and increase of income.

GENERAL REMARKS.

142. A Conference of Forest Officers was again held in January 1873; and though I quite agree with the remarks my predecessor made in his last Annual Report, paras. 312, 313 and 314, regarding the necessity of annual Conferences, I must regard our last meeting as a failure for want of a systematical proceeding.

Forest Conferences.

Papers of more or less interest were read, but none of the members of the Conference were prepared or inclined to attack any of the opinions raised or suggestions made. Consent was even withheld, and I remarked no exchange of ideas or communications of experience gained, which might not have been imparted by a circulation of the papers read without incurring the large expense of a general Conference.

Papers read, but members not prepared for discussion.

These Conferences will, in my opinion, only then fulfil their aim when officers come prepared for discussion. A stray opinion or suggestion in practical matters is but rarely worth the travelling allowance of its originator. The chief questions to be discussed ought to be known months before the Conference takes place, and every officer ought to be furnished with a skeleton of the papers to be read, to allow of such preparation.

143. I have been too short a time in office to allow myself an opinion on the work of the officers in charge of the Divisions, and beg only to bring to your notice that Mr. Powell left an office note for Doctor Stewart, highly commending the services of Mr. Duff, Mr. Wild, Colonel Batchelor, Mr. Sparling and Mr. Allan. The way in which the work went on during the last six months of the year speaks well for the previous management and all Forest Officers, considering that the Department was worked during the period, so to say, without a Conservator.

Services of Divisional Officers.

144. Mr. Minniken and Mr. McDonell worked under me when in charge of the Plantation Division, and distinguished themselves by hard and successful work. Mr. Lister, Forest Ranger, and Mr. Calthrop, on special work, charged under A VI, have worked to my entire satisfaction.

Services of Sub-Divisional Officers.

Mr. Sparling speaks highly of both his Assistants, Mr. Lemarchand, in charge of the Jhelam Sub-Division, and Mr. Elliot, in the Ráwalpindí Sub-Division. I accompanied Dr. Stewart on his inspection of Mr. Lemarchand's work, and quite agree with Mr. Sparling's opinion that the river and depôt work could hardly be done better and more successful.

Mr. Browne comments on the energy exhibited by Captain Atkinson in the fulfilment of various duties. Mr. Duff praises the work of Mr. Rossiter and Munshí Kirpá Rám, but it would lead too far to enumerate the good services of the subordinate establishment, which no doubt has considerably improved in all its branches.

Services of Mr Murray.

145. I remarked on the scanty information received from Mr. Murray, but I should not do justice to that officer if I did not mention that he has been ailing throughout the winter, and has now been declared to be suffering from a dangerous enlargement of the liver.

State of offices.

146. The offices are all in good order, but the Satlaj, Biás, both Fuel Reserve Divisions, the Upper Ráví, Lower Chináb and the Plantation Divisions, supplied information called for by the Conservator quicker and more complete than those of the other Divisions.

Returns appended.

147. The prescribed returns, No. 11, 20 to 28 are appended.

I have the honor to be,

Sir,

Your most obedient servant,

BERTHOLD RIBBENTROP,

Officiating Conservator of Forests, Panjáb.

No. 11.

FOREST DEPARTMENT, PANJAB.

Account of trees felled, logged and Timber launched in the different River Forests during the year 1872-73.

DIVISIONS.	On hand at beginning of the year.	Logged, or obtained as logs ready made.	Total.	Launched.	Remained in forests.	Received in Depôts.	REMARKS.
Satlaj	1,654	(a) 23,609	25,263	6,585	18,678	5,251	(a) Logs ... 5,715 Sleepers ... 17,894
Biás	770	6,328	7,098	3,854	3,244	3,084	
Rávi	479	11,139	11,618	8,468	3,150	8,902	
Chináb	..	16,702	16,702	16,702	..	6,661	
Jhelam	6,957	5,231	12,188	8,636	3,552	7,956	

A. E. WILD,

For Offg. Conservator of Forests, Panjáb.

Conservator's Abstract Book of Summary of Expenditure for 1872-73.

NAMES OF BUDGET HEADS.	EXPENDITURE IN CONSERVANCY AND WORKING.																																			
	April.			May.			June.			July.			August.			September.			October.			November.			December.			January.			February.			March.			TOTAL.		
EXENDITURE.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
A. CONSERVANCY & WORKING.																																				
I.—Timber Expenses ...	11,676	13	2	39,582	5	0	30,280	5	4	24,434	14	6	29,676	9	4	24,188	2	4	68,404	8	6	16,202	3	5	18,652	15	2	58,867	0	4	37,547	0	10	35,264	13	4	3,94,777	12	1
II.—Purchase of stock ...	422	14	3	16	0	0	651	0	6	2,268	3	7	1,153	11	7	655	13	11	420	13	11	155	5	3	239	13	4	58	6	0	261	4	0	916	7	8	7,219	14	0
III.—Feed and keep of cattle	68	4	0	60	9	11	59	14	0	63	6	0	103	8	6	86	14	0	64	14	0	59	14	0	63	1	6	98	8	0	56	12	0	124	1	6	909	11	5
IV.—Rent of leased forests ..	10,500	0	0	...	...	.	4	0	0	...	...	...	...	...	.	...	.	..	10,500	0	0	...	.	.	...	...		1,500	0	0	...	...	..	...	.	.	22,504	0	0
V.—Charges in collecting revenue ...	255	0	0	30	0	0	67	8	0	30	0	0	85	0	0	15	0	0	15	0	0	...	.		...		.	...	..	.	15	0	0	...	.	.	512	8	0
VI.—Plantation ...	6,558	11	0	1,372	1	0	6,242	9	7	4,377	10	3	4,074	2	2	1,867	1	0	8,421	14	0	4,641	8	9	3,929	9	0	3,211	0	6	7,427	10	2	26,748	11	10	78,872	9	3
VII.—Forest work ...	...	.		0	7	6	...	.	.	..	..	..	1	10	9	1	9	6	23	3	6	237	7	2	9	9	0	185	5	6	152	10	6	236	14	0	848	13	5
VIII.—Forest surveys ...	539	4	4	159	5	0	653	8	3	393	5	4	272	7	8	430	11	9	1,011	2	6	...	.		...	.	.	...	..	.	...	...	...	...	.	.	3,459	12	10
IX.—Experiments on timber	...	.	.	...		.	...			...	.	.	...	.	.	...	.		.			...	.	.	..	..		...			...			...	...	.	...	...	...
X.—Comns. and Buildings ..	513	11	7	1,437	8	5	3,195	1	5	4,852	9	9	1,592	15	4	1,319	14	9	4,270	15	5	1,380	14	1	7,880	10	5	2,456	8	9	672	4	6	6,390	1	3	35,963	3	8
TOTAL ...	30,534	10	1	42,658	5	8	41,153	15	1	36,420	1	5	36,960	1	4	28,565	3	3	93,132	7	10	22,677	4	8	30,775	10	5	66,376	13	1	46,132	10	0	69,681	1	7	5,45,068	4	8
B. ESTABLISHMENT.																																				
I.—*Salaries.*																																				
1. Pay of Conservator .	1,113	10	0	1,113	10	0	...			..		.	...			...			...			...	..		6,836	6	8	2,493	13	11	1,571	0	0	1,200	0	0	14,328	8	7
2. Pay of Executive Officers	5,300	0	0	5,629	0	6	8,372	11	9	10,170	0	0	6,063	14	0	6,590	5	2	11,228	5	4	6,950	0	0	5,765	0	0	12,672	9	3	5,953	3	6	11,703	11	10	96,398	13	4
3. Office Establishment .		...																	...			..	...		...			...	..	..	..	..	..	...	...		..	...	...
a. Direction ...	509	3	3	560	0	0	560	0	0	560	0	0	500	0	0	500	0	0	500	0	0	740	0	0	560	0	0	540	10	4	535	0	0	535	0	0	6,599	13	7
b. Executive .	673	6	2	700	3	10	1,030	0	0	910	0	0	645	0	0	730	0	0	1,095	5	2	675	0	0	725	0	0	935	0	0	674	9	7	1,395	5	9	10,188	14	6
4. Forest Conservancy & Estb	} 3,207	9	9	3,957	0	0	4,614	0	0	5,453	7	4	4,642	0	0	4,549	0	0	5,566	1	7	4,342	0	0	4,913	6	2	5,321	10	2	3,824	3	11	7,840	0	11	58,230	7	10
5. Timber Depôt & work do.																																				
6. Deputation and special allowances	...		...	...	...	.	...		.	180	0	0	180	0	0	...	..	.	...	.		...	..		...	.	...	...	...	.	...	...	.	...	.	.	360	0	0
II.—*Travelling allowance.*																																				
1. Conservator . ..	21	15	0	.		.	...		..	...	.	.	...			...	.	..	...	.		...	..		1,483	4	0	..	..		68	4	0	288	0	0	1,861	7	0
2. Executive officers ...	1,906	13	7	2,913	3	10	3,982	4	6	3,229	9	10	3,465	8	6	1,885	3	4	4,046	12	0	2,882	13	5	2,660	4	4	5,241	6	2	2,334	10	0	4,411	13	8	38,960	7	2
3. Depôt Forest Estab. ...	157	1	8	459	0	10	850	5	7	585	7	4	962	4	11	400	13	8	899	5	3	719	1	8	758	5	0	866	3	7	362	12	11	582	13	1	7,603	11	6
III.—*Contingencies.*																																				
1. Stationery .. .	184	0	0	819	2	11	563	6	11	386	5	7	196	10	5	257	7	1	316	8	11	304	7	11	145	4	0	131	2	9	94	14	9	855	13	0	4,285	4	3
2. Office rent, carriage of records	219	3	10	417	3	0	173	4	9	167	11	0	138	13	0	275	10	5	552	2	2	321	9	8	296	10	9	230	0	3	147	11	0	591	3	4	3,531	3	2
3. Pay of Police guard ...	...	.	..	..			...		.	78	15	7	...		.	68	0	0	179	10	8	88	6	6	...			..	...	...		.		...	...	..	415	0	9
4. Sundries	512	11	3	218	4	6	804	10	4	184	8	11	506	13	4	491	11	8	240	9	5	332	0	9	255	1	9	1,037	7	3	342	3	2	1,406	4	5	6,332	6	9
5. Bookage	161	6	6	118	10	0	185	11	6	259	10	0	224	12	6	76	14	6	170	12	0	109	6	0	109	4	8	89	0	0	63	10	6	209	5	0	1,778	7	2
	13,967	1	0	16,935	7	5	21,186	7	4	22,165	11	7	17,525	12	8	15,825	1	10	24,795	8	6	17,464	13	11	24,507	15	4	29,558	15	8	15,972	3	4	31,019	7	0	2,50,874	9	7
	44,501	11	4	59,593	13	1	62,290	6	5	58,585	13	0	54,485	14	0	44,390	5	1	1,17,928	0	4	40,142	2	7	55,283	9	9	95,935	12	9	62,104	13	4	1,00,700	8	7	7,95,942	14	3

A. E. WILD, *Asst. Conservator,*
In charge Office of Forest Accounts, Panjab.

No. 21.

Forest Department, Panjab.

Annual Summary of Revenue and Expenditure in the different Divisions during the year 1872-73.

Classification.	Direction.			Satlaj.			Biás.			Rávi.			Chináb.			Jhelam.			Fuel Reserve.			Plantation.			Total.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
RECEIPTS.																											
I. Sale of timber at depôts	...	...	...	33,008	8	6	59,181	4	5	1,05,539	1	1	24,533	9	4	1,31,253	4	7	8,191	3	7	...	...	...	3,62,606	15	6
II. Sale of timber removed by purchasers ...	...	...	...	3,158	2	9	13,368	11	7	2,283	14	4	717	5	9	73,150	3	3	26,695	3	0	1,406	3	10	1,20,779	15	6
III. Duty on foreign timber	...	...	...	...	...	...	...	...	...	274	0	0	...	...	...	...	...	...	...	...	...	...	...	...	274	0	0
IV. Permit fees	...	...	...	27	8	0	...	...	...	...	...	...	...	...	...	190	8	0	2,674	0	4	2,834	13	3	5,726	13	7
V. Grazing dues	...	...	...	128	0	0	1,864	0	9	...	...	...	...	...	...	4,027	0	1	1,24,852	7	1	8,959	11	10	1,39,831	3	9
VI. Sale of fruits, &c.	...	...	...	119	15	4	1,025	9	3	...	...	...	...	...	...	...	...	...	158	14	0	1,038	11	6	2,343	2	1
VII. Sale of confiscated timber	...	...	...	...	...	...	1	3	6	...	...	...	...	...	...	75	11	6	20	6	8	...	...	...	97	5	8
VIII. Fines and forfeitures	...	...	...	93	3	0	386	6	10	10	8	0	16	0	0	1,667	9	7	247	8	3	191	2	6	2,612	6	2
IX. Miscellaneous...	...	...	...	1	0	0	158	2	0	401	7	1	467	3	6	152	12	5	11,368	9	5	6,173	10	4	18,722	12	9
Total Receipts	...	...	...	36,536	5	7	75,985	6	4	1,08,508	14	6	26,634	5	7	2,10,517	1	5	1,74,208	4	4	20,604	5	3	6,52,994	11	0
CONSERVANCY AND WORKING.																											
I. Timber expenses	...	...	...	53,383	6	1	85,227	10	1	37,626	15	4	34,423	9	3	1,12,885	5	10	71,230	13	6	...	...	...	3,94,777	12	1
II. Purchase of stock	...	...	...	2,715	15	9	1,640	5	9	521	9	0	663	6	3	842	4	5	236	9	9	599	11	1	7,219	14	0
III. Feed and keep of cattle	...	...	...	116	13	0	...	...	...	...	...	...	...	...	...	...	...	...	792	14	5	...	...	...	909	11	5
IV. Rent of leased forests...	...	...	...	1,500	0	0	...	...	.	...	...	...	21,000	0	0	...	...	...	4	0	0	...	...	...	22,504	0	0
V. Charges on collecting Revenue, &c. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	512	8	0	...	...	...	512	8	0
VI. Plantations	...	...	...	113	0	0	765	0	3	10,797	12	5	1,814	7	9	1,242	13	2	3,185	15	9	60,953	7	11	78,872	9	3
VII. Forest works	...	...	...	...	...	...	...	...	...	34	2	6	...	...	...	250	14	9	87	1	8	476	10	6	848	13	5
VIII. Forest survey	...	...	...	...	...	...	3	0	0	37	0	0	189	2	9	1,555	13	1	1,237	5	3	437	7	9	3,459	12	10
IX Experiments on timber	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
X. Communications and Buildings	...	...	...	3,959	14	6	8,128	12	3	5,810	15	1	5,254	8	0	1,922	8	7	1,170	5	7	9,716	3	8	35,963	3	8
Total Conservancy and Working	...	...	...	61,789	1	4	95,764	12	4	54,828	6	4	63,345	2	0	1,18,699	11	10	78,457	9	11	72,183	8	11	5,45,068	4	8
ESTABLISHMENT.																											
I. Salaries...	25,128	6	2	15,375	0	0	13,866	9	0	18,046	4	0	14,611	4	1	25,770	3	11	46,810	6	2	26,498	6	6	1,86,106	7	10
II. Travelling Allowances	5,731	5	7	3,513	14	0	5,194	11	2	4,406	8	1	5,089	14	11	8,043	7	6	8,984	4	1	7,461	8	4	48,425	9	8
III. Contingencies	2,564	1	7	1,247	5	9	1,408	4	11	744	8	0	2,678	4	1	4,258	4	0	2,321	2	2	1,120	9	7	16,342	8	1
Total Establishment	33,423	13	4	20,136	3	9	20,469	9	1	23,197	4	1	22,379	7	1	38,071	15	5	58,115	12	5	35,080	8	5	2,50,874	9	7
GRAND TOTAL EXPENDITURE	33,423	13	4	81,925	5	1	1,16,234	5	5	77,625	11	4	85,724	9	1	1,56,771	11	3	1,36,973	4	11	1,07,262	9	4	7,95,942	14	3

A. E. WILD, *Asst. Conservator,*
In charge Office of Forest Accounts, Panjáb.

No. 22.

FOREST DEPARTMENT, PANJAB.

Annual Abstract of Cash Transactions of the Forest Department during the year 1872-73.

	Rs.	As.	P.		Rs.	As.	P.
To Cash Balance on 1st April 1872 ...	51,204	3	4	By Expenditure chargeable to works, including allowances for wear and tear of dead Stock and Buildings ...	8,18,894	1	9
„ Government ...	7,88,548	12	10	„ Balance of Expenditure on account of dead Stock and Buildings ...	34,546	7	9
„ Income Tax ...	1,268	15	3	*Government.*			
„ Funds ...	2,614	6	2				
„ Revenue from all sources ...	6,52,994	11	1	„ Remittances to Treasuries and transfer to Accountant General for adjustment ...	6,59,067	10	10
„ Recoveries from Contractors ...	65,027	9	10	„ Advances to Contractors ...	27,970	6	11
„ Cash recoveries ...	57,499	0	6	„ Refunds ...	35,855	13	9
„ Refunds ...	4,177	2	9	„ Refund of Income Tax ...	6	5	0
„ Transfer to Accountant General ...	9,432	14	3	„ Provincial Service, Local Fund ...	3,269	0	0
„ Government of India ...	5	7	0	„ Cash Balance on 31st March 1873 ...	53,163	5	0
Total ...	16,32,773	3	0	Total ...	16,32,773	3	0

A. E. WILD, *Asst. Conservator,*
In charge Office of Forest Accounts, Panjáb.

No. 23.

FOREST DEPARTMENT, PANJAB.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers during 1872-73.

DIVISION.	AT OPENING OF THE YEAR.		Advances.	Recoveries.	Due by Contractors	Due to Contractors.
	To Contractors.	By Contractors.				
Satlaj ..	..	810	4,473	810	4,473	..
Biás ..	..	7,432	1,008	6,840	1,600	..
Ráví ..	5,523 *a*	..	9,481	3,958	..	..
Chináb ..	..	636	415	1,051	..	..
Jhelam ..	..	19,641	..	19,641	..	..
Fuel Reserve ..	..	1,06,008	2,118	16,753	91,373	..
Plantation ..	.. *b*	6,118	6,625	12,117	626	..
Direction ..	..	..	3,850	3,855	..	5
Total	5,523	1,40,645	27,970	65,025	98,072	5

a Erroneously shown as 7,141 in last Report. *b* Erroneously shewn as 6,086 in last Report.

Outstandings on Sale Account.

DIVISION.	At opening.	Supplies.	Revenue.	Balance due.	Remarks.
Satlaj ..	9,167	37,094	34,180	12,081	
Biás ..	5,893	76,753	72,550	10,096	
Ráví ..	10,606	1,08,404	1,08,404	10,606	
Chináb ..	7,957	22,177	22,672	7,462	
Jhelam ..	490	2,02,014	2,02,504	..	
Fuel Reserve ..	43,460	1,74,899	1,62,413	55,946	
Plantation ..	2,275	16,625	16,414	2,486	
Total ..	79,848	6,17,814	6,19,137	98,677	

A. E. WILD, *Asst. Conservr.,*

In charge Office of Forest Accounts, Panjáb.

No. 24.

FOREST DEPARTMENT, PANJAB.

Statement of Timber brought to Depôts from Forests in 1872-73.

DIVISION.	Description of timber.	Pieces of logs.	Cubic feet.	*Total of each River.* Pieces or logs.	*Total of each River.* Cubic feet.	REMARKS.
Satlaj ...	Deodár ...	2,897	32,404	...	...	Logs.
	Sleepers ...	4,316	5,744	...	...	Sleepers cut.
	Ditto	5,300	7,056	12,513	45,204	„ purchased
Biás ...	Deodár ...	3,087	89,924	...	...	
	Pines ...	356	6,519	...	...	
	Sleepers ...	9,300	...	...	...	
	Fancy wood	66	818	12,809	97,261	
Rávi ...	Deodár ...	4,784	89,326	...	...	
	Pines ...	3,568	55,860	8,352	1,45,186	
Chináb ...	Deodár ...	4,375	84,585	...	...	
	Pines ...	2,564	42,826	...	...	
	Sleepers ...	10,855	...	17,794	1,27,411	
Jhelam ...	Deodár ...	4,769	1,22,115	...	...	
	Pines ...	3,260	65,040	...	...	
	Sleepers ...	277	...	8,306	1,87,155	
Fuel Reserve ...	Sleepers ...	1,967	...	1,967	...	

A. E. WILD, *Asst. Consvr.,*

In charge Office of Forest Accounts, Panjáb.

Forest Department, Panjab.

Annual Timber Account for the year 1872-73.

I.—Stock in hand at following Depôts:			*I.—Timber removed from Depôts.*		
Satlaj	34,411		Satlaj	17,573	
Biás	1,942		Biás	10,378	
Ráví	25,375		Chináb	2,422	
Chináb	12,211		Jhelam	9,161	
Jhelam	17,630		Ráví	9,084	
Fuel Reserve	7,586	†99,155	Fuel Reserve	3,384	52,002
II.—Timber received at following Depôts:			*II.—Lost by floods on the Biás*	25	25
Satlaj	12,513		*III.—Stock in hand at close of year.*		
Biás	12,809				
Ráví	8,352				
Chináb	17,794		Satlaj	29,351	
Jhelam	8,306		Biás	4,348	
Fuel Reserve	1,967	61,741	Ráví	24,643	
			Chináb	27,583	
			Jhelam	16,775	
			Fuel Reserve	6,169	1,08,869
Total ...	...	1,60,896	Total ...	...	1,60,896

* Erroneously shown as 26,680 in last year's return. † 1,489 sleepers omitted.

A. E. WILD, *Asst. Conservr.,*

In charge Office of Forest Accounts, Panjáb

No. 26.

FOREST DEPARTMENT, PANJAB.

Name of Divisions.	No. of logs sold.	Cubical contents.	Amount realized and due on account of timber sold.	Average amount per log.	Average cubical contents per log.	Average amount per 100 cubic feet.	REMARKS.
Satlej	17,573	74,388	43,913	2·49	4 23	59 03	
Beás	10,378	75,907	67,671	6 52	7·31	88·42	
Rávi	9,084	1,58,540	1,16,884	12·29	17·45	73 73	
Chenáb	2,422	21,698	31,099	12·84	8·95	143 32	
Jhelam	9,161	2,03,705	2,01,008	21·94	22 23	98 67	
Fuel Reserve	3,384	7,352	4,918	1 45	2·17	66 89	
Plantations	...	...	...	...	...	...	
Total ...	5,2002	5,41,590	4,65,493	57 53	62·34	530 06	

Deduct amount due, but not realized ...	40,425
Balance	4,25,068
Add amount realized on account previous year	7,136
Total shown as Revenue on account of Timber sales, I & II	* 4,32,204

* Rs. 4,32,204 plus 51,183, value of fire-wood, &c., equal 4,83,387 Revenue under I & II, *vide* Form No. 21.

A. E. WILD, *Asst. Consvr.*,

In charge Office of Forest Accounts, Panjáb.

No. 27.

FOREST DEPARTMENT, PANJAB.

Statement showing the amount expended on account of Timber received from the different Divisions during 1872-73.

Name of Division.	No. of logs and pieces.	Cubical contents.	Timber expenses.			Conservancy expenses, cost of Establishment, &c., of the Department, excluding Direction.			Total amount expended, excluding Direction.			Average amount paid per log.			Average cubical contents per log.	Average amount paid per 100 cubic feet.	Remarks.
Satlaj ..	12,513	45,204	61,734	10	6	20,266	3	9	82,000	14	3	6	8	0	3·58	181	
Biás ..	12,809	97,261	96,226	7	0	20,007	14	5	1,16,234	5	5	9	0	0	7·59	118	
Ráví ..	8,352	1,45,186	54,428	6	4	23,197	5	0	77,625	11	4	9	4	0	17·39	53	
Chináb ..	17,794	1,27,411	63,460	0	11	22,264	8	2	85,724	9	1	4	13	0	7·16	67	
Jhelam ..	8,306	1,87,155	1,18,699	11	10	38,071	15	5	1,56,771	11	3	18	13	0	22·53	83	
Fuel Reserve ..	1,967	..	16,502	15	4	4,845	14	7	21,348	13	11	10	14	0	..	..	
Total ..	61,741	6,02,217	4,11,052	3	11	1,28,653	13	4	5,39,706	1	3	9	0	0	10·0	86	

For detail of Timber see Form 24.

A. E. WILD, *Asst. Consvr.,*

In charge Office of Forest Accounts, Panjáb.

No. 28.

Annual Account of Forest Revenue for 1872-73.

RECEIPT.	Rs.	A.	P.	EXPENDITURE.	Rs.	A.	P.
Amount of Revenue realized in 1872-73 ...	6,52,995	0	0	Amount disbursed in 1872-73 ...	7,95,943	0	0
Deduct amount realized on account of former periods	31,888	0	0	*Deduct—*			
				Amount disbursed on account of former years ...	1,18,299	0	0
Balance ...	6,21,107	0	0				
Add Outstandings on account of the year ...	18,829	0	0	Balance ...	6,77,644	0	0
Minus for bad debts ...	...	...	...	*Add—*			
				Amount due for transactions during the year under review, but not paid ...	462	0	0
Value of the year's transaction ...	6,39,936	0	0	Real cost of the year's transactions ...	6,78,106	0	0

Value of the year's transaction ...	6,39,936	0	0	
Cost do. do. ...	6,78,106	0	0	
Balance ...	38,170	0	0	Deficit.
Add (or deduct) difference between the value of stock at the commencement and close of the year ...	78,140	0	0	
Net results of the year ...	39,970	0	0	

A. E. WILD, *Asst., Conservr.*

In charge Office of Forest Accounts, Panjáb.

No. 23.

FOREST DEPARTMENT, PANJAB.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers during 1872-73.

DIVISION.	AT OPENING OF THE YEAR.		Advances.	Recoveries.	Due by Contractors.	Due to Contractors
	To Contractors.	By Contractors.				
Satlaj ..	..	810	4,473	810	4,473	..
Biás ..	..	7,432	1,008	6,840	1,600	..
Ráví ..	5,523 *a*	..	9,481	3,958	..	..
Chínáb ..	..	636	415	1,051	..	..
Jhelam ..	..	19,641	..	19,641	..	..
Fuel Reserve ..	..	1,06,008	2,118	16,753	91,373	..
Plantation ..	.. *b*	6,118	6,625	12,117	626	..
Direction ..	..	..	3,850	3,855	..	5
Total ..	5,523	1,40,645	27,970	65,025	98,072	5

a Erroneously shown as 7,141 in last Report. *b* Erroneously shewn as 6,086 in last Report.

Outstandings on Sale Account.

DIVISION	At opening.	Supplies.	Revenue.	Balance due.	Remarks
Satlaj ..	9,167	37,094	34,180	12,081	
Biás ..	5,893	76,753	72,550	10,096	
Ráví ..	10,606	1,08,404	1,08,404	10,606	
Chináb ..	7,957	22,177	22,672	7,462	
Jhelam ..	490	2,02,014	2,02,504	..	
Fuel Reserve ..	43,460	1,74,899	1,62,413	55,946	
Plantation ..	2,275	16,625	16,414	2,486	
Total ..	79,848	6,17,814	6,19,137	98,677	

A. E. WILD, *Asst. Conser.,*

In charge Office of Forest Accounts, Panjáb.

No. 24.

FOREST DEPARTMENT, PANJAB.

Statement of Timber brought to Depôts from Forests in 1872-73.

DIVISION.	Description of timber.	Pieces of logs.	Cubic feet.	Total of each River. Pieces or logs.	Total of each River. Cubic feet.	REMARKS.
Satlaj ...	Deodár ...	2,897	32,404	...	...	Logs.
	Sleepers ...	4,316	5,744	...	...	Sleepers cut.
	Ditto	5,300	7,056	12,513	45,204	„ purchased
Biás ...	Deodár ...	3,087	89,924	...	...	
	Pines ...	356	6,519	...	...	
	Sleepers ...	9,300	...	...	...	
	Fancy wood	66	818	12,809	97,261	
Rávi ...	Deodár ...	4,784	89,326	...	...	
	Pines ...	3,568	55,860	8,352	1,45,186	
Chunáb ...	Deodár ...	4,375	84,585	...	...	
	Pines ...	2,564	42,826	...	...	
	Sleepers ...	10,855	...	17,794	1,27,411	
Jhelam ...	Deodár ...	4,769	1,22,115	...	...	
	Pines ...	3,260	65,040	...	...	
	Sleepers ...	277	...	8,306	1,87,155	
Fuel Reserve ...	Sleepers ...	1,967	...	1,967	...	

A. E WILD, *Asst. Conservr.,*

In charge Office of Forest Accounts, Panjáb.

No. 25.

FOREST DEPARTMENT, PANJAB.

Annual Timber Account for the year 1872-73.

I.—Stock in hand at following Depôts:			*I.—Timber removed from Depôts.*		
Satlaj	34.411		Satlaj	17,573	
Biás	1,942		Biás	10,378	
Ráví	25,375		Chináb	2,422	
Chináb	12,211		Jhelam	9,161	
Jhelam	17,630		Ráví	9,084	
Fuel Reserve	7,586	†99,155	Fuel Reserve	3,384	52,002
II.—Timber received at following Depôts:			*II.—Lost by floods on the Biás*	25	25
Satlaj	12,513		*III.—Stock in hand at close of year.*		
Biás	12.809				
Ráví	8.352				
Chináb	17,794		Satlaj	29,351	
Jhelam	8,306		Biás	4,348	
Fuel Reserve	1,967	61,741	Ráví	24.643	
			Chináb	27,583	
			Jhelam	16,775	
			Fuel Reserve	6,169	1,08,869
Total ...	...	1,60,896	Total ...	...	1,60,896

* Erroneously shown as 26,680 in last year's return. † 1,489 sleepers omitted.

A. E. WILD, *Asst. Conservr.,*

In charge Office of Forest Accounts, Panjáb

No. 26.

FOREST DEPARTMENT, PANJAB.

Name of Divisions.	No. of logs sold.	Cubical contents.	Amount realized and due on account of timber sold.	Average amount per log.	Average cubical contents per log.	Average amount per 100 cubic feet.	REMARKS.
Satlej	17,573	74,388	43,913	2·49	4 23	59 03	
Beás	10,378	75,907	67,671	6 52	7·31	88·42	
Rávi	9,084	1,58,540	1,16,884	12·29	17·45	73·73	
Chenáb	2,422	21,698	31,099	12 84	8 95	143 32	
Jhelam	9,161	2,03,705	2,01,008	21·94	22 23	98 67	
Fuel Reserve	3,384	7,352	4,918	1 45	2 17	66 89	
Plantations	.	...	...	...	...	...	
Total ..	5,2002	5,41,590	4,65,493	57 53	62 34	530 06	

Deduct amount due, but not realized ...	40,425
Balance	4 25,068
Add amount realized on account previous year	7,136
Total shown as Revenue on account of Timber sales, I & II	* 4,32,204

* Rs. 4,32,204 plus 51,183, value of fire-wood, &c., equal 4,83,387 Revenue under I & II, *vide* Form No 21.

A. E. WILD, *Asst. Conser.,*

In charge Office of Forest Accounts, Panjáb.

No. 27.

FOREST DEPARTMENT, PANJAB.

Statement showing the amount expended on account of Timber received from the different Divisions during 1872-73.

Name of Division.	No. of logs and pieces.	Cubical contents.	Timber expenses.			Conservancy expenses, cost of Establishment, &c., of the Department, excluding Direction.			Total amount expended, excluding Direction.			Average amount paid per log.			Average cubical contents per log.	Average amount paid per 100 cubic feet.	Remarks.
Satlaj ..	12,513	45,204	61,734	10	6	20,266	3	9	82,000	14	3	6	8	0	3 58	181	
Biás ..	12,809	97,261	96,226	7	0	20,007	14	5	1,16,234	5	5	9	0	0	7·59	118	
Ráví ..	8,352	1,45,186	54,428	6	4	23,197	5	0	77,625	11	4	9	4	0	17 39	53	
Chináb ..	17,794	1,27,411	63,460	0	11	22,264	8	2	85,724	9	1	4	13	0	7 16	67	
Jhelam ..	8,306	1,87,155	1,18,699	11	10	38,071	15	5	1,56,771	11	3	18	13	0	22·53	83	
Fuel Reserve ..	1,967	..	16,502	15	4	4,845	14	7	21,348	13	11	10	14	0	..	..	
Total ..	61,741	6,02,217	4,11,052	3	11	1,28,653	13	4	5,39,706	1	3	9	0	0	10 0	86	

For detail of Timber see Form 24.

A. E. WILD, *Asst. Conservr.*,

In charge Office of Forest Accounts, Panjáb.

No. 28.

Annual Account of Forest Revenue for 1872-73.

RECEIPT.	Rs.	A.	P.	EXPENDITURE.	Rs.	A.	P.
Amount of Revenue realized in 1872-73 ...	6,52,995	0	0	Amount disbursed in 1872-73 ...	7,95,943	0	0
Deduct amount realized on account of former periods	31,888	0	0	*Deduct—*			
				Amount disbursed on account of former years ...	1,18,299	0	0
Balance ...	6,21,107	0	0				
Add Outstandings on account of the year ...	18,829	0	0	Balance ...	6,77,644	0	0
Minus for bad debts ...	...	...	...	*Add—*			
				Amount due for transactions during the year under review, but not paid ...	462	0	0
Value of the year's transaction ...	6 39,936	0	0	Real cost of the year's transactions ...	6,78,106	0	0

Value of the year's transaction ...	6,39,936	0	0	
Cost do. do. ...	6,78,106	0	0	
Balance ...	38,170	0	0	Deficit.
Add (or deduct) difference between the value of stock at the commencement and close of the year ...	78,140	0	0	
Net results of the year ...	39,970	0	0	

A. E. WILD, *Asst., Conservr.*

In charge Office of Forest Accounts, Panjáb.

Proceedings of the Hon'ble the Lieutenant-Governor, Punjab, in the Department of Agriculture, Revenue and Commerce (Forests),—No. 422F., dated 3rd November 1873.

READ—

Report on Forest Administration for the year 1872-73, furnished by Berthold Ribbentrop, Esq., Officiating Conservator of Forests, Punjab.

REMARKS.—The Report, though dated the 25th August, was not received until the 27th October. For this delay the Officiating Conservator is not responsible. The illness and death of Dr. Stewart interfered with the preparation of the Report, and its printing was delayed in the Central Jail Press, owing to press of work, as explained in the case of other departmental reports.

2. The Hon'ble the Lieutenant-Governor regrets that the results of Forest Administration during the year cannot be considered altogether satisfactory. Good progress was made in the cultivation of the Deodar on the Bias; the transplanting operations in the Changa Manga plantation were remarkably successful; and the final settlement of the Government and village rights in the Hushiárpur Forests was satisfactorily effected; but, on the other hand, save in Changa Manga, no progress appears to have been made in the preparation or carrying out of working plans; the transit arrangements on the Rávi were a failure, and the financial results of the year unfavorable; there was a decrease of income; an increase under almost every head of expenditure; and a deficit on the year's operations of Rs. 38,000. The explanations furnished in para. 139 of the Officiating Conservator's Report account partially (but hardly more than partially) for the decreased income; but the great increase of expenditure is not explained, and His Honor is constrained to attribute it in part to defective control.

3. His Honor trusts therefore that the Officiating Conservator will lose no time in submitting definite proposals for carrying out the measures of economy and for directly increasing the profits of the Department suggested in para. 140. The proposal to "regulate and restrict private timber and fuel trade," contained in clause 3 of para. 140, even after the explanation given in the foot note, is one which does not altogether commend itself to His Honor's judgment. Of course it will be legitimate to take all suitable measures to protect the property of Government from being pilfered, but restrictions on right of cutting the private timber would be most distasteful to the people, and the disadvantages of the measure will, in His Honor's opinion, more than counterbalance the advantages to be expected from it. With regard to settlement of forest rights—this is no doubt an important subject, and the Financial Commissioner will be requested to do his best to expedite the matter; but the work is one of difficulty, and must take time.

4. His Honor proceeds to remark upon a few other matters touched upon in the Report.

5. With regard to the Muzaffargarh rakhs, referred to in para. 15, orders have been already issued for their revised demarcation by the Settlement Officer.

6. The question of the compensation to be paid for the Miánwáli Shisham Forest has come under the consideration of the Lieutenant-Governor; the sum proposed to be awarded in cash was so great (upwards of Rs. 57,000) that His Honor considered it out of the question to proceed with the negotiation on a money basis; but the local authorities have been instructed to ascertain whether it will be possible to effect a compromise, the Government taking one or more compact blocks of forest land and relinquishing its rights in the remainder.

7. The Lieutenant-Governor regrets to hear the unfavorable account given of the rakh boundaries of the Gujrát District, a district which has only recently been settled. The District Officer will be urged to dispose of all disputed cases without delay. With regard to the survey of the Basáhir Forests, para. 27, His Honor still awaits the definite proposals called for in his review of last year's report.

8. His Honor observes with regret that no steps have been taken for submitting proposals for the preservation and utilization of the forest tracts of Banni Khot, but the blame for the delay appears to rest with the officers of the Forest Department.

9. With regard to the remark contained in para. 32, that "the relative right to the dominion seems to depend in a large degree on the opinion of individual authorities," His Honor would observe that, as the Government rights in different localities depend upon questions of fact and local usage, which can only be dealt with by officers of local experience, this must needs be the case; but if the Officiating Conservator supposes that a hard and fast rule of decision can or ought to be prescribed to investigating officers, he is greatly mistaken. The circumstances of each forest tract vary indefinitely; prescription and usage are strong in one locality and weak in another locality; the State rights have been tacitly waived here, have been kept alive elsewhere. Each case must be decided on its merits. His Honor can quite understand that all the decisions are not pleasing to the Forest Department, but it does not follow that they are inequitable.

10. The large number of prosecutions for breach of forest rules in the Ráwalpindi sub-division and the very high percentage of acquittals indicate a want of judgment in the forest officer of the locality.

11. *Primâ facie* it appears that the punishments inflicted for breach of forest rules in the District of Hazára were lenient; but, having regard to the exceptional circumstances of that district, His Honor thinks it possible that the Magistrates evinced a sound discretion in abstaining from a rigorous enforcement of the law.

12. For reasons explained below, His Honor has hitherto abstained from putting in force the new Ráwalpindi Forest Rules. Owing to the frequent complaints he has received of the working of the present rules, he has hesitated to introduce a stricter system until satisfied that the people have proper facilities for obtaining fuel and grazing, and that the local officers of the Department can administer with judgment as well as vigor. The fact that during 1872-73, 674 persons were prosecuted in this sub-division, and only 130 of those prosecuted convicted, indicates that the administration was certainly not judicious.

13. *Para.* 70.—The Lieutenant-Governor has noticed the success of the experiment of protecting the banks of nálas from erosion by the stream by planting them with willow slips. The experiment appears to be of some practical importance, not only to the Forest Department, but to all interested in protecting nála banks from water action. An extract from this portion of the Report will accordingly be published in the *Gazette.*

14. In conclusion, His Honor desires to record his acknowledgments to Mr. B. Ribbentrop, who has given evidence of thorough practical knowledge of Forestry, and at the same time of a desire to conduct his duties, as far as possible, in harmony with District Officers and with consideration to the people. He has further done service in preparing a useful manual of arboriculture for District Officers.

Of the subordinate officers Mr. Duff appears to His Honor to be entitled to special commendation.

ORDER.—Ordered that 320 copies of the Report and of this review be forwarded to the Secretary to Government of India, Department of Agriculture, Revenue and Commerce.

Also that three copies be forwarded to the Conservator of Forests for information.

By order of the Hon'ble the Lieutenant-Governor,

T. H. THORNTON,

Secretary to Government, Punjab.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF OUDH

DURING

1872-73.

SECTION I.

Inspection of Forests.

1. I began my tour of inspection on the 20th November 1872, and with the exception of a visit to Lucknow in March, to arrange about the conveyance and erection of Saw Machinery sent from England, for use in the Oudh Forests, I was absent from Head-Quarters till the 24th June.

2. During that time I visited the Kheri and Bharaich Forest Divisions twice, and the Gonda Division once.

3. In the Kheri Division I inspected particularly a number of the Sál trees which had been selected, felled and logged, also the timber depôts, and saw at the close of the working season most of the out-turn of nearly 4,000 logs collected at the Suthiana depôt. The operations for the supply of firewood to the Oudh and Rohilkund Railway Company, including the making of boats and carts were inspected, plantation work also, and the portions of forest protected from fire as well as other parts of the timber forests, and some of the resumed grants.

4. In the Bharaich Division I inspected specially the Sheeshum logs cut by the Futehgarh Ordnance Department, the plantation work and boat making in the 1st and 2nd Forest Sections, also a portion of the Sál timber of inferior quality which was sold standing to timber merchants, in an enclosed compartment of forest in the 7th Section, also some of the Koosoom trees sold standing in the 8th Section, and the work of renewing the forest boundary marks.

5. In the Gonda Division I examined the forest boundary marks, and the demarcation lines between the Government and the Mahárájah of Balrámpur's forest, and made excursions into the interior of the Government Forest. I also enquired into the complaints made by the Tharoos and other villagers regarding the exclusion of cattle and the stoppage of free supplies of unreserved forest produce from the Government forest in commutation for which, as well as in satisfaction of all other claims, 46½ square miles of Government forest were assigned to the Mahárájah of Balrámpur in 1871, but cattle grazing was not stopped till 1872, when the Mahárájah's lease of grazing expired on the permanent settlement of his estate.

6. Considering that the pasture lands assigned to the Mahárájah of Balrámpur for the use of his tenantry in that neighbourhood, are in many cases a long way off, and perhaps insufficient in extent and in the production of grass for the purpose required, and hearing also that there was danger of many of the villages being deserted unless a concession was immediately made, I considered it advisable to re-open the Government forest to grazing for cows and oxen on which the agricultural population depend so much, but to continue to exclude buffaloes which browse on leaves and young plants and do the most mischief. The cattle-herds are however prohibited from carrying axes, and the forest can be closed at any time if any trees are found lopped for browsing.

7. The other complaint about the difficulty of gettting hut building materials &c. ought, in most cases, to be groundless as the portions of forest assigned to the Mahárájah ofBalrámpur contained at the time of assignment an ample stock of reserved and unreserved trees to supply the domestic and agricultural requirements of all the villages within 3 miles. It is true that the better wooded assignments are in some cases situated at an inconvenient distance from the villages concerned, but they as well those living beyond 3 miles can, if they prefer it, obtain hut-building materials &c. from the neighbouring Government forest on payment of an annual fee of 1 Rs per dwelling house, and of 12 annas for each shed by the whole village according to the number of houses or they can each purchase what they want on payment of the price fixed for each article. It seems however that the villagers resident within 3 miles from the forest for whose use these forest assignments were intended in commutation for the free supplies which they formerly obtained from the Govesnment forest are not allowed to cut any of the reserved kinds of trees, and there is reason to fear that even the inferior kinds of trees in these assignments are not reserved for the use of these villagers, but are sold or given to people living beyond 3 miles. If this is the case and continues so these village forests must soon be drained of their unreserved trees, and the villagers within 3 miles will then be left without any source of supply except the Government forest as formerly, unless the villagers are allowed as they ought to be to cut reserved trees where no others are available.

8. As the principal object of these assignments would, if they are exhausted of their timber resources be defeated, I have written to the Deputy Commissioner of Gonda asking him to request the Mahárájah of Balrámpur to order his agents not to give or sell any of the forest produce of the forest assigned to him, to any person who was not formerly entitled to free supplies from the Government forest. Those living beyond 3 miles can obtain the needful supplies from the Government forest on the terms mentioned in Para 7.

9. The destructive practice of lopping which has done so much damage to the Gonda forests, appears to have been put a stop to by the prohibition of and subsequent restrictions on cattle grazing, but fires have not been kept out of these forests during the past hot season and have as usual done much injury.

10 The good effects of the exclusion of fire during the previous hot season from the 6th and 7th Forest Sections of the Bharaich Division, were shown by the production of numbers of Sál seedlings where I had never seen any before. Unfortunately fire swept across these sections during the high winds in April, and not only burnt these seedlings but scorched most of the Sál flowers on the seed bearing trees and destroyed all hopes of a large crop of new seedlings in the rains. Many of the old seedlings have no doubt since revived and some new ones have probably germinated, but any steady improvement in this low lying forest is impossible unless fire can be kept out for a consecutive series of years.

11. In spite of the annual fires however the Government Sál forests in this Province are improving every year wherever the ground is favorable for the growth and reproduction of Sál, but there is a large area of hard high land and also extensive swamps and numerous hollows included in the Sál forests which either contain no Sál or else produce merely stunted trees and a few seedlings that seem to make no progress. In these places very little improvement can be expected.

12. Except on the banks of the hill streams in the Gonda Division, little or no natural production is going on in the Sissoo forests in Oudh in most places because the ground which is more or less open has been hardened by the annual fires, and the action of the sun and is generally incapable without tillage of reproducing Sissoo from the small quantity of light delicate seed which escapes being burnt by the jungle fire. In other places exempt from fire, the seed is covered every year with a layer of alluvial deposit or washed away by the river. The plan of hoeing up the Sissoo forest land in lines and sowing

Sissoo seed has however been tried with success in both the Kheri and Bharaich Divisions, and it is hoped that an area of one square mile will be brought under Sissoo cultivation in this manner annually in each of these Divisions.

13. As the 160 square miles of resumed grants in the Kheri District and the 5 grants in the Hardui District have not been particularly described in my previous Annual Report, I beg leave to quote from Mr. Dodsworth's report on the subject, which is I have no doubt, the result of careful observation, enquiry and thought, and may be found useful when working these grants.

14. Mr. Dodsworth observes "The soil and production of the 5 grants situated in the Shahabad Tahsíl of the Hardui District, appear to be alike, the soil a hard stiff clay, possessing little or no moisture, during the dry season, products Dhák and thorny shrubs with a few well lopped Peepul trees, grass not very exuberant. The only use that these grants can be brought to is for Keekur " or Babool" plantations. Their natural reproduction would only be a small amount of Dhák fuel once in 12 or 15 years which would hardly compensate for the trouble and expense of conserving them. The Mohunpore and Pipraha grants, situated in the Mohumdee Tahsíl of the Kheri District, are similar in all respects to the Shahabad grants."

15. "All the rest" of the resumed grants in the Kheri District " except No. 2 of Bhoor better known as Bhoor kutiya No. 2 are Sál bearing. There is a general opinion that these grants will never yield Sál trees of a size large enough to yield timber, (by timber here I mean wood for building purposes such as beams &c.). But this opinion appears to have been formed simply on the appearance of the forests in their present state which have been cut and hacked so indiscriminately that no seedlings have been allowed to grow up to their natural size. In several places I saw trees the stumps of which were from 6 to 8 feet in girth ; if these had been allowed to grow to their full size from seedlings the whole of their trunks would probably have been of very nearly the same thickness as the stumps which would be large enough for all necessary purposes."

16. " Twenty trees which grew on village land adjoining the Gungapore grant on the Kutna nuddee were sold not long ago by Bhoodur Singh the owner of the village for 1,100 rupees. These must have been large trees to fetch so high a value on the spot. This I think is sufficient proof that the land will produce Sál trees large enough to be called timber-trees and to yield beams of the largest size generally used."

17. " It is at present difficult to suggest any working plan for these grants which would be remunerative. There are no trees fit to yield large timber in them, the straight trees fit for posts are too few in number to admit of their being felled, in fact nearly all the good trees have been taken out of them and even the crooked and mutilated trees fit for fuel only, are not growing close enough to require thinning."

18. Mr. Dodsworth suggests working these grants as fuel reserves by cutting down to the roots the trees on a certain area annually leaving a few of the best trees per acre standing to shed seed and replace with seedlings those trees which are too old to send forth vigorous shoots from their roots. This will probably prove the best mode of treatment where it can be adopted without pecuniary loss to the Department.

19. " There are four routes by which fuel could be exported from these grants to Shahjehanpur.

1*st.*—By the road which runs from Luckimpore through Hurreenuggar grant on the Kutna to Mohumdee and on to Shahjehanpur.

2*nd.*—By the road which goes from Bhira through Gola and Mohumdee to Shahjehanpur.

3rd.—By the road which runs from Luckimpore through Gola and the Thurburnpore grant to Khootar and on thence *viá* Poowain to Shahjehanpur.

4th.—By the road which runs from Maroucha Ghát through the grants to Koocanghát on the Kunhout nuddee, from where it could be rafted down the Kunhout to Shahjehanpur during the rains.

For exportation to Lucknow the first three routes would be adopted as far as the Gumtí river."

20. Mr. Dodsworth estimates that the cost of supplying the Shahjehanpur market or the Oudh and Rohilkund Railway Company at that place with fuel from the grants situated on the Kutna river would be about Rs. 20 or 21 per 100 maunds, but the average cost of exporting fuel to Shahjehanpur from the grants as a whole would be about Rs. 25 per 100 maunds. He is of opinion that firewood could be delivered at Lucknow from these grants for Rs. 23 per 100 maunds actual cost.

21. The Oudh and Rohilkund Railway Company do not however feel disposed to purchase any more firewood from this Department *even at Bahrámghát where we can deliver it at* Rs. 19 *per* 100 *maunds actual cost unless we* reduce the price to Rs. 15 per 100 maunds, but it may be possible to find a sale in the Lucknow and Shahjehanpur markets for firewood of the best quality from these grants at prices which would at *least cover the cost of working them on the plan* above indicated.

SECTION II.

Reserves.

22. A considerable portion of the Oudh forest boundaries where they were indistinctly marked or the marks had disappeared was re-demarcated during the past dry season, partly by Ameens deputed by the Settlement Department and partly by Forest Ameens. A small trench has been dug and posts erected at the angles along the greater part of the re-demarcated boundaries.

23. The total area of the Government forests in Oudh which was about 824 square miles at the close of last year has been reduced by half a square mile, a small grant of that area having been re-transferred by the Settlement Department to the grantee.-

24. Fire was kept out of about 20 square miles of forest in the Kheri Division, but burnt through nearly the whole of the Bharaich and Gonda forests chiefly during the prevalence of the hot winds.

25. The existing forest roads were repaired during the past working season, but in consequence of a small Budget grant no new road was made except one leading to an important depôt on a high bank at the junction of the Sohelí and Newra streams in the Kheri Division.

26. The usual temporary bridge was made across the Sohelí river at Doodooaghát, and two puckka wells were nearly completed at two central points on the main forest roads.

27. The flat roof of the Forest Chaukí at Doodooaghát has been renewed, extra beams being required to sustain a heavier but more water tight roof and the thatch roof over the verandah has been replaced by one of tiles. The Chaukí at Moteepore in the Bharaich Division, and the resting house in the middle of the Bhinga forest, have also been tiled.

28. Several blocks of forest in the Kheri and Bharaich Divisions besides the whole of the Gonda forests and 8th Section of the Bharaich forests were closed against cattle principally with the object of keeping out fire, and the exclusion of cattle certainly helped to do so in a part of the Kheri forests,but failed

of the desired effect in the Bharaich and Gonda Divisions. The exclusion of cattle is and no doubt always will be an indispensable aid to the exclusion of fire as long as cattle herds owing to the leniency of the law, and the difficulty of detection, find that it pays best to set fire systematically to the grass in the forest in order that their cattle may graze on the fresh and tender shoots which spring up from the roots of the burnt grass. It would be a great mercy to the people if by the infliction of very severe punishments for setting fire to a Government forest, this destructive practice were put a stop to, and the exclusion of oxen and cows rendered unnescessary except in the case of young plantations.

29. In the rest of the Oudh Government forests cattle grazing is allowed and oxen and cows have been re-admitted provisionally into the Gonda forests and 8th Section of the Bharaich Division for the reasons given in Section I Para 6, to which might be added the hopelessness of keeping fire out of a forest range so large and so much frequented by purchasers of minor forest produce and others during the dry season, and unless fire can be kept out for a series of years it is of littlo use keeping it out at all. A few of the best pieces of these forests will be selected and every effort made to keep fire out of these portions.

30. Except in the case of villages within 3 miles of the Gonda forests and 8th Section of the Bharaich Division, for whom special provision was made by agreement with the Máhárájah of Balrámpur, and also with the exception of the villagers living near the resumed grants who were not allowed any forest privileges when the grants were given to the grantees or held by them, the people in Oudh resident within 3 miles from the Oudh Government forests still supply themselves with unreserved forest produce for their own use out of the neighbouring forest free of charge in accordance with the provisions of No. 7 of the Oudh Forest Rules, and those not thus entitled to free supplies can obtain hut building materials &c., for one year on payment of Rs. 1 per dwelling house and 12 annas for each shed, provided the whole village agrees to this arrangement, but very few villages have done so. Each villager can however purchase what he requires at the prices shown in the Price list annexed to this Report (Appendix II.)

31. In the Sál timber forests of the Kheri Division and in the reserved grants since their transfer to this Department, breaches of the Forest rules are rare, except cases of firing the forest which constantly occur in the hot weather. No trees are lopped for fodder in the Kheri Division, but in some parts of the Bharaich forests the branches of some of the inferior kinds of trees are still cut for this purpose. In the Gonda forests no lopping for cattle browsing was observed. A statement of the cases of breach of Forest rules tried, and punishments awarded in Oudh, during 1872-73 is annexed. (*vide* Appendix I.)

SECTION III.

Plantations.

32. 71·9436 acres of Sissoo forest in the Kheri Division and about 160 acres in the Bharaich Division have been hoed up and sown mostly in lines with Sheeshum seed which has germinated freely in the area first mentioned, and proprobably also in the other plantation. In the Kheri Division this work cost Rs 6-10-6 per acre but it is believed that by burning, instead of cutting the grass in future, previous to hoeing, the cost may be reduced by half.

33. About 150 acres of land and probably more in the Mohunpore grant about 12 miles from Shahjehanpur have been cleared, fenced and sown with Babool chiefly in lines 4 feet a part. The result of these sowings is most satisfactory and promising.

34. The Sissoo, Babool and Bamboo sowings in the Ramghur grant, referred to in last year's report, have not been extended as the ground appears to be unfavorable and only a few acres of this plantation seem likely to succeed permanently. As however many of the Sál trees in this grant flowered this year

for the first time since its transfer to this Department, there is every promise of the vacant ground suitable for the growth of Sál, being gradually filled up with naturally sown seedlings.

The experimental cultivation of Neem, raised on an acre of unirrigatad ground along with a crop of Urhur, succeeded in the Bharaich Division, but not so well in the Ramghur grant and failed entirely in the Kheri division owing to late sowing.

36. The bamboo sowings in the Kheri Division have not got on very well, having been cropped by deer, or rooted up by wild pigs, or injured by fire, but when the bamboo roots are old enough to throw out vigorous shoots they will, where the ground is favorable no doubt, overcome most of these difficulties as they do in natural bamboo forest. Bamboos would certainly furnish the cheapest means of buoying up rafts of timber and fuel, and they would sell well at Bahrámghát. A small plantation of plantain trees which are also useful for floating purposes was formed in the forests last rains, but it was found difficult and expensive to protect the plants from being eaten by Neelgai.

37. The area of plantations in Oudh, formed by this department, which promise to succeed is probably about 390 acres.

SECTION IV.

Yield of the Forests.

38. Two thousand six hundred and thirty-one Sál trees were felled during the past working season in the Kheri division, which contains the only Sál timber forest in Oudh, capable of being profitably worked departmentally.

39. The provisions of the working plan as revised by Dr. Brandis and Captain Wood in 1868 and again in 1870, have been carried out except that no Asna or Haldoo trees but only Sál has been felled, the first two kinds being unsaleable at remunerative prices.

40. With regard to felling trees with the cross-cut saw close to the ground recommended by many forest officers as compared with felling with the axe Mr. Dodsworth remarks. "I do not myself see the advantage of felling trees with the cross-cut saw in these forests nor yet of cutting them very close to the ground. The only advantage appears to be that two or three cubic feet of timber per log is economized. The following are the disadvantages which, in my opinion, more than counterbalance the advantage.

1*st.* The cost of felling the trees with the cross-cut saw is greater than that of felling them with the axe.

2*nd.* It is very difficult to get sawyers to work in forests whereas coolies are plentiful.

3*rd.* The carters will not cart out very long logs from the forests, and the length of the log they are able to carry varies according to the girth, and as the lower end is much thicker than the upper a longer piece will have to be cut off from the upper end of the log than that which is saved in the lower, the length of the log will therefore be reduced.

4*th.* The trees at present standing in these forests are as a rule hollow at the lower end of the trunk. Consequently the lower down a tree is felled the larger will appear the hollow in the log. Now to saw up these logs into beams or other large scantlings it will be necessary to cut off the hollow end from as far as the hollow extends, or if the logs are cut down the centre there will be a considerable loss of wood in the centre piece. Again if the logs are sold whole the purchaser will estimate the value agreeable to the appearance of the log, and the hollow at the butt end being larger the log will appear to be worse than it really is, and a fair value will not be obtained for it. If the value is reduced by

2 annas per cubic foot there will be an average loss of Rs. 5 per log. In the perfectly sound logs there will of course be a fair amount of timber economized, but on the whole, there will in my opinion, be no pecuniary advantage gained.

41. Some of the disadvantages of felling with the saw referred to by Mr. Dodsworth may be avoided by cross cutting all hollow trees at the end of the hollow part after felling them close to the ground.

42. 1,303 logs and 200 pieces of sleeper length were carted to the Forest depôts during the year 1872-73, and nearly 4,000 logs were carted out by the end of the dry season. The timber is now felled, carted and rafted to the main depôt, at Bahrámghát, within a period of about 12 months.

43. Although so much carting work has been done during the past season, and thousands of rupees had to be advanced in small sums to 159 cartmen on the security of their carts and oxen it says much for the care taken by Mr. Dodsworth, and his assistant Mr. Hill, that only Rs. 86-14-5 were outstanding on the 30th June out of the total advances made for carting during the year under review, and I have no doubt that the balance either has been or will be recovered.

44. 1,721 logs were rafted to the main depôt at Bahrámghát during the year 1872-73, 2 reached Doodooaghát depôt and 24 arrived at Shitabaghát which is situated at the junction of the Sohelí and Gogra and is the half way depôt where timber and fuel have to be kept until the Gogra river falls sufficiently to admit of rafting to Bahrámghát with safety.

45. There are now altogether 377 canoes in the Kheri Division ready for use and 170 canoes have been scooped out and shaped in the forests. About 650 similar boats have been hollowed out and carted to depôt from the 2nd Section of the Bharaich forests for carrying fuel, but they have not yet been completed. The following is the scale of rates paid for hollowing out and shaping canoes in the Kheri Division.

Length of canoes.	Inner girth at 5 feet 4 inches from the thick end.	Rate.
33 feet.	6 feet, ...	8 0 0
34½ feet.	6 feet 9 inches, ...	10 0 0
36 feet.	7 feet 6 inches, ...	12 0 0
37½ feet.	8 feet 3 inches, ...	16 0 0
39 feet.	9 feet, ...	20 0 0

46. About 40 strong timber and fuel transport carts have been completed for Rs. 20 each exclusive of value of timber and 200 buffaloes purchased for about Rs. 9 or 10 each to draw them. Contracts have been issued for the construction of 50 large boats to be made entirely of Sál timber and warranted to carry 700 maunds of firewood and to cost Rs. 250 each, exclusive of the value of the timber. It is found that large boats undoubtedly pay better than canoes for the conveyance of fuel as they require fewer men to manage them in proportion to their carrying capacity, and large boats will be indispensable when the new Saw mill is in working order in the forests and we have to convey scantlings of Sál timber by river to Bahrámghát. The making of canoes has therefore been stopped, and the balance of the grant given for boat making will be spent in the construction of large boats.

47. 8,099 maunds of firewood were delivered to the Oudh and Rohilkund Railway Company within the year 1872-73, and about a lac of maunds have been collected during the working season at Bahrámghát for delivery to the Company. Arrangements have been made for the supply of the remainder of the 5 lacs by the 31st March 1874, as promised.

48. About 2,500 green Sál trees of inferior quality including 115 made into boats were sold standing in No. 3 block of No. 7 Section in the Bharaich Division, as it was considered that, that number of superannuated trees might if saleable at a profit be cut in this Section, the area of which is about 40 square miles and is estimated to contain 76,800 trees of 1st class size 9-10ths of which are hollow and crooked. It was however a great mistake in a sylvicultural point of view to allow the purchasers, although they gave a good price namely 8 annas per cubic foot, to select the best trees in this block, instead of selecting departmentally only those trees which were cumbering the ground. The Assistant Conservator of Forests, Bharaich Division, reports that about 6 per cent. only of the trees felled in No. 3 block were sound, and that of these 1 per cent. were trees of 2nd class size cut contrary to agreement. It will indeed be better in future to allow all the 1st class trees in this Section to die a natural death rather than run the risk for the sake, even of a large revenue, of depriving the forest of a single tree, which may be required to replenish the ground with seedlings.

49. 52,370 cubic feet of Sheeshum timber growing in No. I and II Section, Bharaich Division, were purchased from this Department and paid for by Book Transfer at 0-8-0 per cubic feet, by the Fathegur Ordnance Department during 1872-3, 1,000 trees more of 1st class size were allowed to be cut in consideration of the urgent requirements of that Department, and the probable success of the Sissoo plantations which will far more than replace the trees felled. It is however much to be regretted that many Sisoo trees under six feet in girth have been felled. 1,600 cubic feet of green Sál timber were sold standing in in the 8th Section to the Bharaich Sub-Division of the Public Works Department at 8 annas per cubic foot, no dead trees having been found fit for the purpose required.

50. The improved quality of the Sál timber brought out of the Oudh Government Forests by Departmental Agency has been maintained during the the year under review as testified by the proceeds of timber sales. The timber intended for the Bahrámghát market is carefully selected by Mr. Dodsworth, or Mr. Hill.

SECTION V.

Financial Results.

51. Receipts during the year as given by the Accountant General North-Western Provinces were are as follows :—

Head	I. Timber sales at Depôts, ...	Rs.	1,36,609	14	6
„	II. Timber sales in the Forests,...	„	1,18,895	13	8
„	III. Duty on Foreign timber, ...	„	0	0	0
„	IV. Permit fees, ...	„	0	0	0
„	V. Grazing dues, ...	„	21,680	15	5
„	VI. Sale of fruits &c., ...	„	11,835	15	8
„	VII. Sale of confiscated timber, ...	„	1,564	12	7
„	VIII. Fines and forfeitures, ...	„	238	15	2
„	IX. Miscellaneous, ...	„	5,431	11	8
	Total,	Rs.	2,96,258	2	8
	Deduct Expenditure,	„	1,43,420	8	7
	Actual Surplus,	„	1,52,837	10	1

The net surplus is shown by Statement No. 28 to be Rs. 86,417-15-7.

52. The prescribed Financial Statements are annexed, Forms 21 to 28 inclusive, No. 28 Form and subsidiary detailed statements have been drawn up in accordance with the latest orders on the subject. It is hardly necessary

therefore to enlarge on the financial results of the Forest Administration in Oudh during 1872-73.

SECTION VI.

General Remarks.

53. I have received very great assistance from Mr. Dodsworth, Assistant Conservator of Forests, 2nd Grade, in charge of the Kheri Division, who has managed his Division with his usual steady care and energy, as well as with marked ability and success, both in his executive and revenue work.

54. Mr. Hill, Assistant Conservator of Forests, 3rd Grade, and first student of his year among the Forest Cadets educated in Forestry in France, joined this Department in December last and was posted to the Kheri Division, where he has shown himself to be a very useful and promising Forest Officer.

55. Specimens of Oudh Forest woods and other products were collected during last year and sent to the Vienna Exhibition.

56. The Saw Machinery received from England for the use of this Department consisting of a vertical tension saw frame and bench—a circular saw bench—and a 12 horse power engine has been conveyed to the Forest Depôt where it is to be erected as soon as possible by Mr. Downes, a Mechanical Engineer, sent out to take charge of this work.

57. The following Office and Forest subordinates deserve favorable mention, and increase of pay.

Baboo Kunhya Lall, Head Clerk of this Office, Baboo Rughoburdial Bajpae, Head Clerk of the Kheri Forest Office, and Baboo Dowlut Roy, Head Clerk of the Baraich Forest Office, also Forest Rangers, Muthra Pershad, Kasim Khan and Amanut-oolla Khan.

58. As the revenue of the Oudh Government forests has so greatly increased within the last two years I hope Government may entertain a proposal for the increase of the Establishment, and for the progressive increase of the salaries of the Forest subordinates in this Province, who have, as Mr. Dodsworth says, to endure many hardships away from their families in an unhealthy climate at the risk of losing their lives, or of having their constitutions so ruined, as to render them unfit to earn their own living for any length of time.

59. In conclusion I hope the Chief Commissioner and the Government of India may excuse the delay in the submission of this report, as the corrected annual account current, and summary of revenue and expenditure of the Oudh Forest Department, were not received from the Accountant General till the 20th of August, on which day I was seized with a very severe illness from the effects of which I have not yet quite recovered.

Faizabad,
The 27th September 1873.

W. STENHOUSE, *Captain,*
Offg. Conservator of Forests,
Oudh.

No. 21.

FOREST DEPARTMENT, OUDH.

ANNUAL SUMMARY OF REVENUE EXPENDITURE IN THE DIFFERENT DIVISIONS DURING 1872-73.

Classification.	Direction.	Kheri.	Bharaich.	Gonda.	Total.
Receipts.					
I. Sale of Timber at Depôts, ...	.....	1,33,409 14 6	3,200 0 0	.....	1,36,609 14 6
II. Sale of Timber removed by purchasers.	.....	7,422 14 4	27,618 0 3	13,854 15 1	1,18,895 13 8
III. Duty on foreign timber, ...	.....	.....	.....	.....	.....
IV. Permit fees, ...	.....	.....	.....	.....	.....
V. Grazing dues,...	....	9,298 4 5	11,796 8 11	586 2 1	21,680 15 5
VI. Sale of fruits, &c., ...	.....	2,286 6 3	4,748 13 3	4,800 12 2	11,835 15 8
II. Sale of confiscated timber, ..	.....	249 2 7	1,315 10 0	.....	1,564 12 7
II. Fines and forfeitures, ...	.....	175 2 2	31 13 0	32 0 0	238 15 2
IX. Miscellaneous, ...	.....	3,068 12 2	2,186 1 0	176 14 6	5,431 11 8
Total Receipts, ...	....	1,55,910 8 5	1,20,896 14 5	19,450 11 10	2,96,258 2 8
Conservancy and Working.					
I. Timber expenses, ...	424 13 0	58,131 13 5	598 0 11	.....	59,154 11 4
II. Purchases of stock and cattle,	2,060 10 6	1,115 10 0	571 10 6	286 2 0	4,334 1 0
II. Feed and keep of cattle, ...	764 15 0	553 6 8	603 1 8	564 11 5	2,786 2 9
V. Rent of leased Forests, ...	... ..	.....	417 5 9	.....	417 5 9
V. Charges in collecting revenue on grass &c.	31 4 0	370 15 4	4,392 13 5	391 4 0	5,186 4 9
I. Plantations, ...	88 12 6	808 6 7	576 8 6	2,118 11 10	3,592 7 5
I. Forest work, ...	.....	1,841 6 8	970 4 9	377 4 3	3,188 15 8
I. Forest survey,...	.....	.....	.....	.....	.....
I. Experiments on timber, ...	.....	.....	.....	3 8 0	3 8 0
I. Communications and buildings.	.....	4,841 9 4	3,060 1 3	636 6 11	8,538 1 6
al Conservancy and Working, ...	3,370 7 0	68,263 4 0	11,189 14 9	4,378 0 5	87,201 10 2
Establishments.					
. Salaries, ...	9,632 2 1	11,463 8 6	9,115 1 5	2,797 4 6	33,008 0 6
. Allowances, ...	1,681 3 8	3,165 0 1	2,098 7 3	1,121 9 1	8,066 4 1
. Contingencies, ...	877 10 5	12,873 13 2	809 9 5	583 8 10	15,144 0 10
Total Establishment, ..	12,191 0 2	27,502 5 9	12,023 2 1	4,502 6 5	56,218 14 5
Grand Total Expenditure, ...	15,561 7 2	95,765 9 9	23,213 0 10	8,880 6 10	1,43,420 8 7

W. STENHOUSE, Captain,
Officiating Conservator of Forests, Oudh.

No. 22.

FOREST DEPARTMENT, OUDH.

Dr. ANNUAL ABSTRACT ACCOUNT OF THE CASH TRANSACTIONS OF THE FOREST DEPARTMENT IN THE YEAR 1872-73. **Cr.**

Year.	Heads of Account.	Rupees.			Year.	Heads of Account.	Rupees.		
1872-73.	To Cash Balance in hand on 1st April 1872, ...	19,636	0	7	1872-73	By expenditure of the Department, ...			
	„ Revenue received, ...	2,96,258	2	8		A. Conservancy and Working, ...	87,201	10	2
	„ Remittances from Public Treasuries, ...	1,40,017	0	7		B. Establishments, ...	56,218	14	5
	„ Advances recovered, ...	66,721	13	6		Total, ..	1,43,420	8	7
	„ Deposits received, ...	9,446	8	4		„ Remittances to Public Treasuries, ...	1,78,729	15	3
	„ Military Fund, Madras &c. Donations and Subscriptions,	588	3	0		„ Book Transfers, Department Public Works, ..	80,457	4	3
	„ Military Department, Madras, ...	15	0	0		„ Advances made, ...	79,824	15	4
	„ Income Tax received, ...	203	12	8		„ Objectionable items not included under expenditure,	2,010	3	4
	„ Receipt from Superintendent Government Printing, Calcutta, ...	3	12	0		„ Refund of Revenue and Income Tax, ...	810	0	3
	TRANSFERS.					„ Government of North Western Provinces Transfers,	15,648	5	6
						„ Ditto of Punjab ditto, ..	6,792	8	0
	„ Account Current with London Miscellaneous receipts,	9,801	4	1		„ Deposits repaid, ...	9,630	11	5
	GOVERNMENT OF INDIA.					„ Central Provinces, ...	59	9	11
							5,17,384	1	10
	„ Value of Stores and Medicines supplied Military Department, ...	244	1	1		Cash Balance on 31st March 1873, ...	25,551	8	8
	Total, ..	5,42,935	10	6		Total, ..	5,42,935	10	6

W. STENHOUSE, CAPTAIN,
Offg. Conservator of Forests, Oudh.

NO. 20.

FOREST DEPARTMENT, OUDH.

ANNUAL STATEMENT OF OUTSTANDINGS AND LIABILITIES OF THE DEPARTMENT ON ACCOUNT OF CONTRACTORS AND DISBURSERS.

Value of Timber Stock.											Rs.	As.	P.
Shahjehanpur Depôt,	Sál Logs,	2 @ 40	cubic feet	@ 1	0	0	per cubic foot,	..	..	..	80	0	0
In Sardah in transit	ditto	47 @ 40	„	@ 0	12	0	per „	..	..	..	1,410	0	0
At and on road to Srinagar Ghát on the Sardah,	ditto	2 @ 40	„	@ 0	10	0	per „	..	..	..	50	0	0
In Sohelí in transit, or sunk,	ditto	455 @ 40	„	@ 0	4	0	per „	..	..	..	4,550	0	0
Sohelí Depôts,	ditto	3,670 @ 40	„	@ 0	8	0	per „	..	..	..	73,400	0	0
Ditto	Asna and Huldoo Logs,	1,590 @ 40	„	@ 0	4	0	per „	..	..	..	15,900	0	0
Shitabaghát Depôt,	Sál Logs,	35 @ 40	„	@ 0	10	0	per „	..	..	..	875	0	0
Ditto ditto	Asna Logs,	140 @ 40	„	@ 0	5	0	per „	..	..	..	1,750	0	0
Bahrámghát Depôt,	Sál Logs,	1,357 @ 40	„	@ 1	0	0	per „	..	..	..	54,280	0	0
Ditto ditto,	Asna and Huldoo Logs,	237 @ 40	„	@ 0	8	0	per „	..	..	..	4,740	0	0
	Total Logs, ..	7,535											
Sohelí Depôts, Log pieces sleeper size,	Sál,	720 @ 15	„	@ 0	8	0	per „	..	..	..	5,400	0	0
Ditto ditto ditto,	Asna and Huldoo,	190 @ 15	„	@ 0	4	0	per „	..	..	..	712	8	0
	Total Log pieces, ..	910											
Sardah Sleepers,		192 @ 5	„	@ 2	8	0	each,	..	..	..	480	0	0
	CANOES FOR RAFTING PURPOSES.												
In Kheri Division,		377 @		@ 50	0	0	each,	..	..	..	18,850	0	0
In Bharaich Division,		84 @		@ 40	0	0	each,	..	..	..	3,360	0	0
Firewood, 65,419, maunds,				@ 19	0	0	per 100 maunds,	..	..	..	12,429	9	9
									Total,	..	1,98,267	1	9

No 23.—(*Continued.*)

Divisions	Department Debtor.			Department Creditor.			Balances due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (Outstandings.)	By Department (Liabilities.)
KHERI.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
OUTSTANDINGS ON ACCOUNT OF SALES.								
Mohesh Chunder, Timber Merchant, ...	.....	..	..	2,400 0 0	..	2,400 0 0	2,400 0 0	..
Deputy Commissioner, Kheri, ...	753 4 9	..	753 4 9	..	..	..	..	753 4 9
Executive Engineer, Sítápur Provincial Division, Public Works Department.	.....	14,061 8 0	14,061 8 0	..	6,569 12 7	6,569 12 7	..	7,491 11 5
Purchasers of Timber, ...	.....	1,17,622 3 7	1,17,622 3 7	..	1,50,611 8 2	1,50,611 8 2	32,989 4 7	..
Oudh & Rohilkund Railway Company (fire-wood),	.....	1,216 9 7	1,216 9 7	..	1,216 9 7	1,216 9 7	..	..
Executive Engineer, Nowgong Division, Public Works Department.	17,835 9 8	..	17,835 9 8	..	..	..	..	17,835 9 8
Total, ..	18,588 14 5	1,32,900 5 2	1,51,489 3 7	2,400 0 0	1,58,397 14 4	1,60,797 14 4	35,389 4 7	26,080 9 10
EXCESS PAYMENTS TO CONTRACTORS.								
Kheri Division, Old accounts, ...	.....	..	..	20,040 12 11	..	20,040 12 11	20,040 12 11	..
" New ditto (carters), ..	.....	9,796 13 11	9,796 13 11	4,353 8 11	15,217 7 7	19,571 0 6	9,813 12 2	39 9 7
" ditto (rafting contractors), ..	.....	3,726 8 0	3,726 8 0	7,444 5 0	2,970 5 8	10,414 10 8	6,708 2 8	20 0 0
" ditto (other contractors), ..	.....	12,238 0 0	12,238 0 0	..	13,641 3 0	13,641 3 0	1,403 3 0	..
Total, ..	.....	25,761 5 11	25,761 5 11	31,838 10 10	31,829 0 3	63,667 11 1	37,965 14 9	59 9 7
ADVANCES TO FOREST SUBORDINATES FOR WORKS.								
Direction, ...	.....	133 8 5	133 8 5	..	366 2 5	366 2 5	232 10 0	..
Kheri Division, ...	.....	42,338 8 10	42,338 8 10	1,861 9 5	48,961 11 3	50,823 4 8	8,487 0 4	2 4 6
Bharaich, ...	.....	19,705 3 6	19,705 3 6	3,557 3 1	22,275 0 7	25,832 3 8	6,127 0 2	..
Gonda, ...	.....	4,544 8 9	4,544 8 9	520 15 0	10,232 4 5	10,753 3 5	6,209 11 3	1 0 7
Total, ..	.....	66,721 13 6	66,721 13 6	5,939 11 6	81,835 2 8	87,774 14 2	21,056 5 9	3 5 1
Total outstandings and liabilities, ..	.....	..	..	..	..	..	94,411 9 1	26,143 8 6

W. STENHOUSE, CAPTAIN,

Offg. Conservator of Forests, Oudh.

No. 24.

FOREST DEPARTMENT, OUDH.

STATEMENT OF TIMBER BROUGHT TO DEPOTS FROM THE DIFFERENT FOREST DIVISIONS DURING 1872-73.

Name of river or Division.	Forest.	Description of timber.	Pieces.	Cubic feet.	Total of each Division.		Remarks.
					Pieces.	Cubic feet.	
Kheri Division.	Kheri Forests	Sál logs, ..	1,303	′ ″ ‴ 52,120 0 0			
Ditto, ..	Ditto, ..	Ditto, Sleeper size.	200	′ ″ ‴ 3,000 0 0	1,503	′ ″ ‴ 55,120 0 0	
Ditto, ..	Ditto, ..	Firewood, ..	71,176¾	Maunds.	71,176¾	Maunds.	

W. STENHOUSE, CAPTAIN,

Offg. Conservator Forests, Oudh.

No. 25.

FOREST DEPARTMENT, OUDH.

ANNUAL TIMBER ACCOUNT FOR THE YEAR 1872-73.

Particulars.	Pieces.	Totals.
	Sál logs.	
I.—Stock in hand at the following Depôts at the commencement of the year.		
At Shajehanpur Depôt, ...	2	
On road between Suthiana and Srinagar,	1	
At Srinagar Ghát, ...	228	
In transit to Bahrámghát, ...	150	
At Suthiana, Depôt, ...	1,667	
At Doodooa, ditto, ...	526	
At Bundee, ditto, ...	162	
At Tirhia ditto, ...	1,149	
In transit to Bahrámghát sunk in the Sohelí, ...	482	
At Shitabaghát Depôt, ...	553	
At Bahrámghát, ...	2,887	10,807
II.—Timber received at Depôts from the Forests,	1,303	
Ditto ditto ditto, pieces, sleeper size,	200	1,503
		12,310
	Sál sleepers.	
I.—Stock in hand:—		
At Puchperee Ghát, ...	192	
II.—Timber received at Depôts, ...	...	192
	Firewood.	
I.—Stock in hand,:—	...	
II.—Firewood recieved at Depôts,...	71,176¾	71,176¾
Total pieces &c, ...	Sál, Asna and Huldoo, logs,	12,310
	Sál sleepers,	192
	Firewood in Maunds,...	71,176¾

Particulars.	Sál.	Asna.	Huldoo.	Pieces.	Total.
I.—Timber removed by purchasers from Depôts,... ...				3,749½	3,749½
II.—Timber lost:— In Sardah river, ...				84	
In Sohelí ditto, ...				29	
Used in making canoes, ...				2	
Used in making cash box, ...				½	
III.—Stock in hand at close of the year at the following Depôts:—					
Logs. At Shajehanpur Depôt, ...	2	...	...	2	
Sardah Depôts, „ On road between Suthiana and Srinagar,	1	...	...	1	
Sardah Depôts, „ At Srinagar Ghát, ...	1	...	...	1	
Sardah Depôts, „ In transit to Bahrámghát, ...	47	...	...	47	
Sohele Depôts, „ At Suthiana Depôt, ...	2,897	1,177	73	4,147	
Sohele Depôts, „ At Doodooaghát, ...	370	77	...	447	
Sohele Depôts, „ At Bundeeghát, ...	32	36	1	69	
Sohele Depôts, „ At Tirhiaghát, ...	371	218	8	597	
Sohele Depôts, „ In transit to Bahrámghát, ...	455	...	...	455	
„ At Shitabaghát Depôt, ...	35	...	140	175	
„ Bahrámghát, ...	1,357	236	1	1,594	
Sohelee Depôts, „ Pieces sleeper size, ...	...	...	.	7,535	
Sohelee Depôts, „ Do. at Suthiana Depôt, ...	500	60	2	562	
Sohelee Depôts, „ Do. at Doodooa Depôt, ...	14	...	...	14	
Sohelee Depôts, „ Do. Tirhia Depôt, ...	206	128	...	334	
				910	8,445
				Sál sleepers.	
I.—Timber removed by purchasers,...				...	
II.—Timber lost, ...				...	
III.—Stock in hand, ...				192	192
				Firewood.	
I.—Firewood delivered to the O. & R. Railway Company,				5,757¾	Maunds.
II.— Ditto lost, ...				...	
III.—Stock in hand, ...	Maunds,			65,419	71,176
Total pieces &c, ...	5,568	1,884	83	Sál, Asna & Huldoo logs,	7,535
	720	188	2	Do., sleeper size, ...	910¾
	...	...	...	Sál sleepers, ...	192–
	...	...	...	Firewood in Maunds,	71,176¾

W. STENHOUSE, CAPTAIN,
Offg. Conservator of Forests, Oudh.

FOREST DEPARTMENT, OUDH.

STATEMENT SHOWING THE AMOUNT REALIZED ON ACCOUNT ON THE DIFFERENT CLASSES OF TIMBER SOLD DURING 1872-73.

Divisions.	Number of Logs &c., sold.		Cubical contents.	Amount realized and due on account of timber sold.	Average amount per log.	Average cubical contents of each.	Average amount per 100 cubic feet.
			Cubic feet.	Rs. As. P.	Rs. A. P	Cubic feet.	Rs. As. P.
KHERI.							
By Public auction sale at Bahrámghát depôt, ...	Logs	2,284	98,577 3 10	1,12,403 4 0	49 3 5	43 1 11	114 0 5
„ Private sales at do. do, ...		137½	6,822 5 6	5,599 12 4	40 11 7	49 7 4	82 1 4
Sales by selection at do. do., ...		133	6,894 5 11	5,506 6 10	41 6 5	51 10 0	79 13 10
By sale to Superintendent Jail Futtehgarh, N. W. P, at depôt, ...		110	4,214 10 9	6,322 5 6	57 7 6	38 3 9	150 0 0
„ „ to Oudh and Rohilkund Railway Company, at do., ...		10	556 0 4	973 0 0	97 4 9	55 7 2	174 15 10
„ „ to Assistant Engineer Bustee, at depôt, ...		60	2,542 7 7	4,131 12 5	68 13 9	42 4 6	162 7 11
„ „ to Superintendent, Jail, Bustee, at do., ...		30	1,266 7 10	2,057 4 0	68 9 2	42 2 7	162 1 2
„ „ to Executive Engineer, P, W D, Bahrámghát, at depôt, ...		251	9,853 4 8	12,535 3 0	49 15 0	39 3 0	127 3 5
„ „ to ditto ditto ditto, ...	.....		39 0 7	53 10 3	53 10 3	39 0 7	137 8 0
„ „ to ditto Sítápur Provincial Division, at Bundee and Suthiana.		383	5,537 0 7	4,152 12 7	10 13 5	14 5 5	75 0 0
„ „ to ditto ditto in advance, ...	.....		.....	7,491 11 5	.....	.....	.....
„ Private sales to Native Merchants at Doodooaghát, ...		56	926 0 5	682 12 1	12 3 0	16 6 5	73 11 0
„ ditto to ditto at Suthiana, ...		295	3,855 5 7	2,763 1 9	9 5 10	13 0 9	72 2 8
„ Sale of fuel to Oudh and Rohilkund Railway Company, ...	Fuel,	5,757¾	maunds.	1,216 9 7	0 3 4	per maund	20 13 4 per 100 maunds.
„ Sale of Miscellaneous timber, ...	.....		.....	459 9 4	.....	.....	.....
BHARAICH.							
„ Sale of Canoes, ...	Canoes,	80	@ 40 each.	3,200 0 0	40 0 0	.....	.....
Logs, ...		3,749½					
Firewood, ...		5,757¾	maunds.				
Canoes, ...		80					
Miscellaneous timber, ...	.....		.....	1,69,549 3 1			

Remarks.	Pieces.
Timber sold in previous year remaining unremoved at the commencement of the year	116
Timber sold during the year, ...	3,749½
Total, ...	3,865½
Timber remaining unremoved at the close of the year, ...	116
Balance removed from depôts by purchasers during the year, ...	3,749½

Deduct amount due but not realized during the year, ...	32,989 4 7
Balance, ...	1,36,559 14 6
Add amount realized on account of former years, ...	50 0 0
Total shown as revenue on account of timber sales, ...	1,36,609 14 6

W. STENHOUSE, CAPTAIN,

Offg. Conservator of Forests, Oudh.

No 27.

FOREST DEPARTMENT, OUDH.

STATEMENT SHOWING THE AMOUNT EXPENDED ON ACCOUNT OF TIMBER RECEIVED FROM THE DIFFERENT FOREST DIVISIONS DURING 1872-73

Name of Division.	No. of Logs &c.	Cubical contents.	Timber expenses.	Add 5-11th of the expenditure under the other Budget Heads.*	Total amount expended,	Average amount paid per Log &c.	Average cubical contents per Log &c.	Average amount paid per 100 cubic feet.
	Logs.	Cubic feet.	Rs. As. P.	Rs. As. P.	Rs, As. P.	Rs. As. P.	Cubic ft.	Rs. As. P.
KHERI DIVISION.								
Felling, logging and carting logs from forests to Depôts, ...	1,302	52,120 0 0	6,026 6 0	12,197 7 1	18,223 13 1	13 15 9	40	34 15 5
Ditto do. Sleeper pieces do.,	200	3,000 0 0	250 0 0	506 6 3	756 6 3	3 12 6	15	25 3 4
	Firewood.							
Cutting, collecting, carting and rafting Firewood from forests to Bahrámghát depôt, ...	71,176¾	Maunds	12,100 0 9	25,171 6 5	37,271 7 2	0 8 3	per maund.	51 6 11 per 100 maunds.

ABSTRACT RATE.

Remarks,	
Logs per 100 Cubic feet.	
Timber expenses.	11 9 0
5-11th of the expenditure under the other heads, ...	23 6 5
Total, ...	34 15 5
Sleeper pieces per 100 Cubic feet	
Timber expenses ...	8 5 4
5-11th of the expenditure under the other heads. ...	16 14 0
Total,	25 3 4
Firewood per 100 Maunds.	
Timber expenses ...	17 0 0
5-11th of the expenditure under the other heads. ...	34 6 4
Total, ...	51 6 11

* 5-11th of the expenditure under other Budget heads is added, because the proportion of revenue under 1 to the revenue under the other heads is as 5-6. nearly.

W. STENHOUSE, CAPTAIN,

Offg Conservator of Forests, Oudh

No. 28.

FOREST DEPARTMENT, OUDH.

ANNUAL ACCOUNT OF FOREST REVENUE FOR THE YEAR 1872-73.

Receipts.						Disbursements.			
Amount of revenue realized in 1872-73, ...				2,96,258	2	8	Amount disbursed in 1872-73, ...	143,420	8	7
DEDUCT :							DEDUCT :			
Amount realized on account of previous periods, ..				50	0	0	Amount disbursed on account of transactions of former periods in	0	0	0
Balance, ...				2,96,208	2	8	Balance	1,43,420	8	7
ADD :							ADD :			
Outstandings on account of the year, ..	35,389	4	7	0	0	0	Amount due for transactions during the year under review but not yet disbursed, ...	62	14	8
Deduct Liabilities, ...	26,080	9	10	9,308	10	9				
Value of the years' transactions, ...				3,05,516	13	5	Real cost of the years' transactions, ...	143,483	7	3

Value of the years' transactions, ...	3,05,516	13	5
Cost of the years' transactions.	1,43,483	7	3
Balance	1,62,033	6	2
(Deduct) difference between the value of stock at the commencement and close of the year, ..	61,640	6	3
Net results of the year, ...	1,00,392	15	11
(Deduct) on account of cost of supplying deficiency of stock at the close of the year, ...	13,975	0	4
Net surplus of the year, .. .	86,417	15	7

W. STENHOUSE, CAPTAIN,

Offg. Conservator of Forests, Oudh.

Detailed list of Realizations, Outstandings and other deductions on account of transactions during 1872-73, supplementary to Form No. 28.

Name of purchaser of timber.	Amount realized &c.			Budget Head.	Remarks.
Executive Engineer, 2nd Oudh Roads Division, ..	50	0	0	1.	Less realized in previous year on account of Sál Bullees supplied.
Total, ..	50	0	0		
OUTSTANDINGS ON ACCOUNT OF TIMBER SALES.					
Mohesh Chunder, Timber Merchant, ...	2,400	0	0	I.	A decree has been obtained against Mohesh Chunder for this amount.
Assistant Engineer, Bustee, North-Western Provinces..	4,131	12	5		Since realized.
Superintendent, Jail, Bustee, ditto ditto, ..	2,057	4	0		
Ditto Jail, Futtyghur, ditto ditto, ..	6,180	4	0		
Oudh and Rohilkund Railway Company, ...	973	0	0		
Ditto ditto ditto, ...	11,356	8	0		
Executive Engineer, Public Works Department, Bahrámghát, Oudh,	1,000	9	0		
Mohobut Khan, ...	468	0	0		
Siree Lál	600	0	0		
Gungadeen, ...	500	0	0		
Baluk Rám, ...	1,401	0	0		
Budree Dáss, ...	630	8	0		
Munshí Nuwul Kishore, ...	562	8	0		
Rám Narain, ...	380	0	0		
Chaidee, ...	250	0	0		
Bisrám, ...	476	12	0		
Dhunnee, ...	162	8	0		
Rám Bux, ...	1,444	0	0		
Gungadeen, ...	12	1	3		
Shib Lál, ...	375	1	11		
Bubur Ally, ...	27	8	0		
Total, ..	35,339	4	7		
LIABILITIES ON ACCOUNT OF TIMBER SALES.					
Deputy Commissioner, Kheri, ...	753	4	9	I.	Balance due on account of excess payment received from the Deputy Commissioner, Kheri, for timber; will be adjusted by the supply of timber of that value.
Executive Engineer, Sitapur Provincial Division, ..	7,491	11	5		Ditto ditto of excess credits afforded in accounts by the Executive Engineer, Provincial Division, Sitapur, Public Works Department, for timber; will be adjusted by the supply of timber of that value.
Executive Engineer, Public Works Department, Nowgong.	17,835	9	8		Ditto ditto of excess payments received from the Executive Engineer, Nowgong, Public Works Department, for timber; will be adjusted by transfer entries in accounts as directed by the Accountant General of Public Works Accounts, and the Accountant General, North-Western Provinces.
Total, ..	26,080	9	10		

W. STENHOUSE, CAPTAIN,
Offg. Conservator of Forests, Oudh.

Detailed List of amount due for transactions, during the year 1872-73, but not yet disbursed, supplementary to Statement No. 28.

Name of Contractor or Disburser.	Amount due.	Budget head.	Remarks.
CARTERS, KHERI DIVISION.			
Kurhur son of Bhojay, ...	1 3 8	AI.	Excess value of work done.
Imámee „ „ Bheekum.	1 10 9	AI.	Ditto ditto.
Kuramut Khan, „ „ Jhundoo Khan, ...	34 2 9	AI.	Ditto ditto.
Báz Khan „ „ Samund Khan, ...	2 8 5	AI.	Ditto ditto.
RAFTING CONTRACTOR.			
Dyáram Gooria, ...	20 0 0	AI.	Ditto ditto.
SUBORDINATES.			
Banee Pershad, (Darogah), ...	2 0 6		Excess recovery.
Budree Pershad, (Ditto), ...	0 4 0		Ditto ditto.
GONDA DIVISION.			
Mookut Beháree Lál, (Munshí), ...	1 0 7		Ditto ditto.
Total, ..	62 14 8		

W. STENHOUSE, CAPTAIN,

Officiating Conservator of Forests, Oudh.

APPENDIX No. I.

List of Forest Cases tried and punishments awarded in Oudh, during the financial year 1872-73..

Number.	Name, residence and occupation of accused.	Date and locality where the offence is stated to have been committed.	Nature and description of offence.	Sentence.	Remarks.
		KHERI DIVISION.			
1	Four Kuhars, .	24th June 1872, at Londonpur grant.	For removing Forest produce in grants without permission.	One weeks' imprisonment or a fine of Rs 2 each.	
2	Ouseree, resident of Dhukwa, a cultivator.	6th January 1873, at Asudnagar grant.	Cutting green Sál, ..	15 days imprisonment or a fine of Rs. 30.	
3	Puragee, resident of Motípur a cultivator.	4th March 1873, at Motí pur.	Cutting and removing Sál wood without permission	A fine of Rs. 5.	
4	One man,	25th May 1873, at Dunia-pur grant.	Cutting green reserved wood.	15 days imprisonment or a fine of Re 1.	
5	Four men, ...	8th June 1873, at Hakimpur grant.	Ditto, ..	A fine of as. 8 each man	
6	Two men, ...	22nd June 1873, at Londonpur grant.	Ditto, .	A fine of as 4 each man.	
				(Sd.) R. S. DODSWORTH, *Asst Conservater of Forests.*	
		BHARAICH DIVISION.			
7	Ramchurn, ...	31st March 1872, Section V.	Cutting green Asna,	Rs 10 fine in default 15 days imprisonment.	
8	Narain, ..	10th April 1872, ditto,	Cutting 5 green young Sál trees.	Rs. 25 fine, in default 3 months imprisonment.	
9	Soorujbally, ...	27th April 1872, Section VII.	Breach of Forest rule No. XIX.	.. ..	Released.
10	Jodha Koormee, ...	17th May 1872, Section V	Cutting green Asna,	Rs. 4 fine, in default 15 days imprisonment.	
11	Bhawanee.	3rd May 1872, Section VII.	Breach of Forest rule No. XIX		Released.
12	Gouree Pasee, ..	Ditto ditto,	Ditto ditto, ..	Rs 5 fine, in default 3 weeks imprisonment.	
13	Mindyo Guddee, ...	3rd August 1872, Section VII.	Theft of Muhowa,	Rs 50 fine. in default 6 months imprisonment.	
14	Soorujbali,	23rd August 1872, Section VI.	Cutting green Sál, ...	Rs 5 fine.	
15	Mahabalí and Mindye, ...	14th August 1872, Section VII	Cutting ditto and Asid,	.	Released.
16	Mungray Goojur, ...	22nd October 1872, Section VI.	Cutting green Khair,	Rs. 5 fine, in default 1 month imprisonment.	
17	Bullee Koormee,	3rd November 1872, Section VII	Ditto. ...	Rs. 4 fine.	
18	Jogee and Sheochurn Ahir.	3rd February 1873, at Pursrampur	Cutting green Ebony,	Rs 4 fine, in default 15 days imprisonment.	
19	Goolzar Gooria of Kewulpore.	27th March 1873, at Simree Ghatan.	Theft of a boat,	Rs 4 fine.	
20	Soorujbalí Ahir of Bugloola.	Oudh Forest boundary.. .	Firing forests, ..	3 months rigorous imprisonment.	
21	Bhugwunt Brahmin,	Ditto, .	Ditto, .	Rs. 5 fine.	
22	Bhawanedeeen Koormee of Lalpore.	26th June 1872, at Mahadewa.	Cutting Khair wood,...	Rs. 3 fine.	
23	Gouree Koormee of Boodhowa.	4th September 1872,	Cutting Waif and stray log.	.....	Released.
24	Murdan Ali Shah of Gangapore.	At Midukia,	Cutting young Sál, ...		Released.
				C. J. PONSONBY, *Asst. Conservator of Forests Bharaich Division,*	

W. STENHOUSE,
Offg. Conservator of Forests, Oudh.

APPENDIX No. II.

Price List of Produce of the Oudh Government Forests.

Sub-head.	Hindustani Name.	English Name.	Quantity.	Rate.
	CHOB KHOOSHK.	DRY WOOD.		
II	Sakoo Darakht, Khooshk,...	Dead Sal trees, ...	Cubic foot, ...	3 annas to 4 as.
	" " Andhi ka gira, " ...	" " " wind falls, ...	" ...	5 annas to 8 as.
	" " Line ka kata, " ...	Line cuttings dry, ...	" ...	5 annas to 10 as.
	" " Ka koron gola ya bullee, " ...	Large rafters do., ...	2 bullock Cart, ...	1 8 0
	" " " santa, " ..	Small do. do., ...	" ...	0 12 0
	" Tham, thoonee, " ...	Posts for native houses, ...	" ...	2 0 0
	" Bundair, " ...	Ridge poles for do., ...	" ...	2 8 0
	" " 2 foot, moohit tak, " ...	" not more than 2 feet in girth,	Each, ...	0 8 0
	" " 3 " " " ..	" " than 3 feet in " ...	" ...	1 0 0
	" Hurs hal, " ...	Plough beams, ..	" ...	0 2 0
	" Khopee jangha, " ...	Plough and plough handles, ...	" ...	0 0 3
	" Harsa garhee, " ...	Cart beams, ...	Pair, ...	1 0 0
	" Moongri yani Náh, " ..	Wheel naves, ..	Each, ..	0 4 0
	" Ara gaz, " ...	" spokes, ...	" ...	0 1 0
	" Painjni, " ...	" outside beam, ...	Pair, ...	0 4 0
	" Kolhoo, 7′ tool, 80″ gol, " ...	Sugar or Oil Press, ...	Each, ...	6 0 0
	" " 7′ tool, 90″ gol, " ...	do. do., ...	" ...	5 0 0
	" Dondar, " ...	Hollow dead Sál tree, ..	Per tree, ..	3 Rs. to 5 as.
	" Jangul men garhi banana, " ...	Cart manufacture in the forests,...	Per man working 6 months,	10 0 0
	Sheeshum } Darukht, " ...	Sissoo or Panun dead tree, ...	Cubic foot, ...	3 annas to 4 as.
	ya Panun. } " andhi ka gira, " ...	Ditto " wind falls, ...	" ..	5 annas to 8 as.
	" Jori puhiya, garhi tyar, ...	Complete pair of cart wheels, ..	Pair, ...	3 0 0
	Kuthra Kulan, ..	Wooden dish large, .	Score, ...	4 0 0
	" Ausat, ...	" medium, ...	" ...	3 0 0
	" Khoord, ...	" small, ...	" ...	2 0 0
	" Jotha yani jooa, ...	Yoke, ...	Each, ...	0 2 0
	Asna Darakht, khooshk,...	Dead Arseyna trees, ..	Cubic foot, ...	0 1 0
	" ya Asid. Khopee jangha, ...	Plough and plough handles, ...	2 bullock Cart, ...	2 0 0
	Khair, khooshk, ...	Dead Cutch wood, ...	Cubic foot, ...	0 1 0
	Tikoee ya Huldoo khooshk, ...	Dead Huldoo wood, ...	" ..	0 1 0
	Huldoo, terha, " kanghi ke waste, ...	Crooked ditto for combs, ...	Per tree, ...	1 0 0
	Sokhta-yani julane ki lakri, ...	Firewood, .	3 head loads or 2 banghies,	0 0 3
	" " ...	Ditto, ...	Poney load, ...	0 0 6
	" " ...	Ditto, ...	Donkey " ..	0 0 3
	" " ...	Ditto, ...	Buffalo " ...	0 0 9
	" " ...	Ditto, ...	2 bullock Cart, ...	0 1 6
	Kalaye, ...	Dry Arseyna bark for tanning, ..	Head load, ...	0 3 0
	Koela, ...	Charcoal, ..	Ditto, ..	0 0 9
	" ..	Ditto, ..	Banghy load, ...	0 1 6
	" .	Ditto, ..	Ass " ...	0 1 6
	" ...	Ditto, ..	Horse or Buffalo, ...	0 2 0
	" ...	Ditto, ...	2 bullock Cart, ...	1 0 0
	Sakoo aur Sheeshum. Ek garhi ka saman, ...	Wood for 1 Cart complete, ...	Each, ...	5 0 0
	CHOB SUBZ, (*Muhfoozuh.*)	GREEN WOOD (*Reserved.*)		
	Sakoo. Dondur waste kishtee, ...	Hollow trees for boats, ...	Each, ...	15 Rs. to 20 Rs.
	Taindoo. Abnoos saldar, ...	Ebony wood, ...	Cubic foot, ...	0 8 0
	Dhao. Dhoora, ...	Axle, ...	Per score, ...	2 8 0
	Tikoee. Terha darakht kanghi ke waste, ...	Huldoo crooked trees cut into hair combs in the forests.	Per tree, ...	1 8 0
	CHOB SUBZ (*Ghyr Muhfoozuh.*)	GREEN WOOD (*Unreserved.*)		
	Bota mootafurrikat, alawah koosoom, ...	Wood of any unreserved kind except Koosoom.	Per cubic foot, ...	0 1 0
	Koron gola, ..	Round rafters large, .	2 bullock Cart, ...	1 0 0
	" santa, ...	Medium sized rafters, ...	" ...	0 8 0
	Batee, ...	Thin rafters, ...	" ...	0 8 0
	Jotha yani jua, ..	Yoke, ...	Each, ...	0 1 0
	Koosum. Yat ya bota, ...	Koosum wood, .	Per cubic foot, ...	0 4 0
	" Moosul, ...	Pestle, ..	Each, ...	0 1 0
	" Mohun, 10½ ft. tool, 17-19 inch mota,	Oil crushers, ...	" ...	0 8 0
	Jamun. Newar, ...	Well curbs, ...	" ...	3 0 0
	Miscellaneous } Kuthra kalan, ...	Wooden dish (large), ...	Per score, ...	0 2 0
	wood. } " Ausat, ...	" (medium), ...	" ..	1 8 0
	" Khoord, ...	" (small), ...	" ...	1 0 0
	Roondair yani khuradee kam, ...	Wood turnery works, ..	Per man 6 months, ...	6 0 0
	Oorga wugerah. Kusao yani bukla, ...	Bark of Oorga, &c., for tanning, ..	Head load, ...	0 2 0
	Mookooea aur karounda. Jhar kateela, ...	Prickly branches for fences, ...	" ...	Gratis.
	Burgud, Peepul, &c. Chara Hathee, ...	Elephant's fodder, ...	Per diem, ...	0 1 0
	Churree, ...	Walking stick, ...	Per score, ...	0 2 0
	CHUREE (*Saliyanuh.*)	GRAZING (*Annually.*)		
V.	Oudh. Churree ya churaee Bhais, ..	Grazing Buffaloes, ...	Each, ...	0 9 0
	Cattle " Sand, gae, byl, ghora, ...	" Bulls, cows, oxen and horses,	" ...	0 3 0
	" Tuttoo, khuchur, guddha, ...	" Ponies, mules, donkeys, ...	" ...	0 1 6
	" Bhair, bukree, ...	" Sheep and goats, ...	" ...	0 0 9
	Dhooloorsee yani khoont, ...	Cattle passing through and grazing in the forests or staying 10 days.	" ...	¼th of the rates.
	" " " ...	Do. do. or do. over do.,	" ...	Full rates.

APPENDIX No. II.—(*Continued.*)

Sub-head.	Hindustani Names.	English Names.	Quantity.	Rate.
	CHUREE (*Saliyanah.*)	GRAZING (*Annually.*)		
V.	Cattle from other Provinces. Churree, Bhais,	Grazing Buffaloes, ...	Each, ...	0 12 0
	„ Sand, byl, ghora,	„ Bulls, oxen and horses, ...	„ .	0 5 0
	„ Gae,	„ Cows, ...	„ ...	0 3 0
	„ Tuttoo, khuchur, gadha,	„ Poneys, mules and donkeys	„ ...	0 2 0
	„ Bhair, bakree, .	„ Sheep and goats, ...	„ ..	0 1 0
VI.	PYDAWAR JUNGLE (*Mootfurrikat.*)	MINOR FOREST PRODUCE.		
	Kuths, ..	Cutch,	Half the yield in quantity or value to be given to Government.	...
	Lakh,	Gumlac raised on Peepul trees, ...		
	Maum aur Shuhud, .	Wax and honey, ..		
	Goolaindi Muhwa,	Muhooa seeds, ...		
	Phool „ ..	„ flowers, ...		
	„ Toon, Dhak, Harsingar,	Toon, Dhak and Harsingar do., ..		
	Khus,	Kuskus for tatties, ...		
	Puttay Agai ya Maurain, ...	Agai and Morain leaves used for eating out off in native festivals.	Gratis, ..	..
	Sun Morain,	The fibres of the Elephant creeper.	„ ..	..
	Ghás waste chuppur ke, ..	Thatching grass, .	3 head loads or 2 banghies.	0 0 3
	„ „ „	Ditto, ..	Horse or buffalo, ...	0 0 6
	„ „ „ ...	Ditto, ...	2 bullock Cart, ...	0 2 0
	Seonk jharoo ke waste, ..	Grass for making brooms, ...	Per men per diem, ...	0 0 3
	Saintha,	Reed grass, .	Head load, ..	0 0 6
	„	„	Banghy load, ...	0 1 0
	„	„ ...	Horse or buffalo, ...	0 1 6
	„ ...	„ .	2 bullock Cart, .	0 6 0
	Baid ya byt, ...	Cane, ...	„ ...	1 0 0
	Moonj aur Sirkee, ...	Sacharum munja, .	Head load, .	0 1 0
	„ „	„ „ ...	Banghy load, ...	0 2 0
	„ „	„ „ .	Horse and buffalo load, ..	0 3 0
	„ „ .	„ „	2 bullock Cart load, ...	1 8 0
	Bunkus yani byb, ...	Grass for ropes, ...	Head load,	0 1 0
	„ „ ...	„ „ ...	Banghy load,	0 1 6
	„ „ .	„ „ .	Horse or buffalo, ...	0 2 0
	„ „ ...	„ „ .	2 bullock Cart, ...	1 0 0
	Chutaee nurkool,	Reed mat, ...	Head load, ...	0 0 6
	„ „ .	„ ...	Banghy, ...	0 0 9
	„ „	„ ...	2 bullock Cart, ...	0 6 0
	Pulnga yani burgi Khujoor, .	Dwarf date leaves, ...	Head load, ...	0 0 3
	Kulum yani naiza, ...	Native pen reed,	2 bullock Cart, .	1 0 0
	Kumeela ya rohinee,	Rohnee dye powder, ...	Half the yield in quantity or value to be given to Government.	...
	Hur, Buhaira, Chirounjee aur Aonla. ..	Wild fruits, .		
	Kakra Singhee, .	A medicinal herb, ...		
	Kuppoor Kutchree,	Ditto, ...		
	Nagur motha,	Sweet smelling grass (cyperus pertenius.		
	Kunwulgutta, . .	Lotus fruit,		
	Kusairoo, ..	Root (Cyprus tuberosus), ...		
	Ruttunjote, .	A medicinal herb, ...		
	Sitawur,	Ditto, .		
	Mooslee syah-o-sufaid, .	Root black and white,		
	Bilace kund, ...	A medicinal herb, ...		
	Mainphul, ..	Ditto, fruit, ...		
	Peepul, ..	Long pepper, ...		
	Indurjow aur lodh puthanee, ..	Doodhee seed and bark, ..		
	Mooluhtee and goongchee .	A medicinal root and seed, ...		
IX.	Licence Bungae pukurne ka,	Licence to catch wild cattle, ...	For each animal caught, .	5 0 0
	„ Muchhlee ka shikar, .	„ to fish,	Per man per maund, ...	1 0 0
	„ Shikar churun-do purund ka, ...	„ to shoot, ..	Do., ...	1 0 0
	„ Churna, gae, bhais, hirun, wugairuh.	Hides of cows, buffaloes, &c., ..	Half the out-turn in quantity or value to be given to Government.	..
	Seeng, bhais, hirun, wugairuh,	Buffalo, &c., horns,		
	Choona, .	Lime stone, ...	2 bullock Cart, ...	4 annas to 6 as.

W. STENHOUSE, CAPTAIN,

Officiating Conservator of Forests, Oudh.

APPENDIX III.

Additional Annual Statements prescribed in Government of India No. $\frac{46}{1559}$ dated 30th December 1873, Department Agriculture, Revenue, and Commerce.

AREA OF RESERVE FORESTS.

Reserve Forests	Area in 1871-72.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.
	Square Miles.	Square Miles.	Square Miles.	Square Miles
1st or Kheri Division, ...	427	.....	½	426½
2nd or Bharaich Division, ...	257	.....	.....	257
3rd or Gonda Division, ...	140	.....	.....	140
Total, ...	824	.....	½	823½

AREA OF UNRESERVED FORESTS.

Unreserved Forests.	Area in 1871 72	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.
	Square Miles.	Square Miles.	Square Miles.	Square Miles.
	Nil	*Nil,*	*Nil.*	*Nil.*
Total, ...	.....	.....	.....	.....

APPENDIX III.—(*Continued.*)

AREA OF PLANTATIONS.

Plantations.	Area in 1871-72.	Total cost.	Area added during 1872-73.	Amount expended during 1872-73.	Total area up to 1872-73.	Total expenditure incurred up to 1872-73.
	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.
Sissoo, Babool and Bamboo plantations, ...	100	2,902 7 2	79·9436	479 4 0	179·9436	3,381 11 2
Total, ...	100	2,902 7 2	79·9436	479 4 0	179·9436	3,381 11 2

AREA OF FOREST TRACTS PROTECTED FROM FIRE.

Forest tracts protected from fire.	Area in 1871-72.	Total cost.	Additional area protected in 1872-73.	Amount expended in 1872-73.	Total area protected up to end of dry season 1872-73.	Total expenditure incurred up to 1872-73.
	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P
Kheri Division, ...	...	10 0 0	12,800	113 3 3	12,800	123 3 3
Bharaich do., ...	about. 1,00,000	.....	.....	.....	.....	.....
Gonda do., ...	about. 60,000	.....	.....	.....	.....	.....
Total, ...	1,60,000	10 0 0	12,800	113 3 3	12,800	123 3 3

APPENDIX III.—(*Continued.*)

PROSECUTIONS FOR BREACHES OF THE FOREST RULES.

	Number of Prosecution.		Convictions obtained or still pending.	
	Number of cases.	Number of persons.	Number of cases.	Number of persons.
Kheri Division, ...	6	13	6	13
Bharaich Division, ...	18	20	13	14
Gonda Division, ...	..	...	...	...
Total, ...	24	33	19	27

W. STENHOUSE, CAPTAIN,

Offg. Conservator of Forests, Oudh.

Minute by the Chief Commissioner on the Annual Progress Report, Oudh Forests, for the year 1872-73.

1. This report, although due from the Conservator on the 10th August, was only received yesterday 15th October; or six weeks after the date (1st September) on which it is due to the Government of India.

This great delay is owing to the severe illness of the Conservator, as explained in para. 59 of his Report.

2. The financial results of the Forest Administration during the year appear satisfactory, there being a net surplus of Rs 86,418.

It is noted that under the head of "Contingencies" the expenditure in the Kheri Sub-division has suddenly sprung from Rs. 1,522 in 1871-72 to Rs. 12,874 in 1872-73.

The cause of this great increase of Rs. 11,352, or 800 per cent., on this item ought to have been explained.

Under "Outstandings" (balances due to Department) there is a sum of Rs. 94,411 made up as follows :—

On account of sales, ...	Rs.	35,389
Excess payments to Contractors,... ...	„	37,966
Advances to Forest Subordinates, ...	„	21,056
Total, ...	„	94,411

In 1871-72 these outstandings amounted to Rs. 40,178 only, and in both statements as well as in that for *1870-71*, the same item of Rs. 20,041, under the heading of "Old accounts" is again brought forward without a remark.

It would be satisfactory to know the cause of this increase of more than cent per cent during the present year, in the outstandings of the Department; and the reason why this sum of Rs. 20,040 has been kept on the books for upwards of three years.

Under the head of "Liabilities" also, a sum of Rs. 17,836 has been shown as due to the Executive Engineer, Nowgong Division, for two years past, without any apparent attempt having been made to adjust the amount.

3. It would be desirable in future that the Conservator should preface his Financial Statements with a few explanatory remarks instead of merely making the bald observation (para. 52); that, because the Statements are drawn up in accordance with the usual Forms "therefore "it is hardly necessary to enlarge on the financial results of Forest "Administration."

4. The value of Timber Stock has been reduced from Rs. 2,59,907, in 1871-72 to Rs. 1,98,267 in 1872-73.

5. In 1871-72, the reciepts on account of Sale of Timber amounted to Rs. 90,393 only, whereas in 1872-73 the sum realized was Rs. 2,55,505; a result, very creditable to the exertions of the Conservator and his As-

sistants, and highly satisfactory as indicating that dealers are now beginning to place more confidence than formerly on the quality of wood supplied, regarding which in former years there used to be many complaints.

6. The Establishment Charges, Rs. 33,008, remain practically the same as last year. The question regarding a proposed increase referred to by Conservator in para. 58 of his Report cannot yet be entertained. The Establishment has been considerably strengthened within the last few years, and the results due to this increase, in the shape of surplus Revenue, are only now beginning to show. The time has not yet arrived for still further expanding the Department in this Province.

7. The information regarding the supply of firewood to the Oudh and Rohilkund Railway at Bahrámghát is very meagre. Last year on the urgent representation of the Conservator, Government sanctioned an additional Grant of Rs. 63,800, for the above purpose, and an agreement was entered into to supply the Railway with 5,00,000 maunds by the 31st March 1874, of this amount, (Para 47) 8,099 maunds were delivered, and about 1,00,000 maunds were collected for delivery in 1872-73.

In Para. 21, however, it is stated that the Railway "do not feel dis-"posed to purchase any more firewood" unless it can be delivered at Rs. 15 per maund ; but the agreement was for Rs. 19 the "actual cost" at Bahrámghát, and it is not understood why the agreement has been set aside.

A full and detailed Report must be submitted on the subject.

8. The subject of Fuel Plantations for Railways in Oudh has received much attention from this Administration.

It was originally shown by Conservator that upwards of 12,00,000 maunds of wood fuel were required annually for the Oudh and Rohilkund Railway; and that this amount could be supplied from the Government Coppice Woods and Dhák Jungles in the Kheri, Hardui, Gonda and Bharaich Districts at a rate of Rs. 21 at Lucknow, but from Para. 20 of his Report now under review, it would appear that firewood cannot be delivered at Lucknow under Rs. 23, and at Shahjehanpur under Rs. 25 per 100 maunds.

Conservator has satisfied himself with simply quoting his Assistant, Mr. Dodsworth, as his authority for the above revised rates for delivery ; and has not made any comments on the discrepancy of rates as before exhibited to those now estimated.

Mr. Dodsworth is also quoted in other portions of the report, but his suggestions and observations—although no doubt valuable in themselves—would be of greater weight had they been endorsed with some expression of opinion by Conservator.

The sole comment that is made is in Para. 18, where Conservator agrees with Mr. Dodsworth regarding the mode of working the fuel reserves, but even this judgment is guarded by the observation that "it will "probably prove the best mode of treatment *where it can be adopted* "without pecuniary loss to the Department."

9. The usual annual complaint regarding the damage caused by fires in the Forests is again brought forward.

The devastating influences of this violent element are much to be regretted. The Officiating Chief Commissioner agrees with the Conservator that a person who wilfully sets a forest on fire should be very severely punished; and he does not doubt that the Judicial Officers of the province would be ready enough to recognize this position on a charge of that nature being brought home to a delinquent.

Last year sanction was given to close certain blocks of Forest against cattle, principally with the object of keeping out fire, and from Para. 28, it would appear that this arrangement certainly helped to do so in a part of the Kheri Forests, but failed of the desired effect in the Bharaich and Gonda Divisions. This fact would tend to show that a little extra supervision would have had the desired effect, of at all events reducing the frequency of fires, which in many cases are often accidentally occasioned.

10. The rules regarding cattle grazing, referred to in Para. 29, and 6 of the report are approved of.

11. The reference to the Mahárájah of Balrámpur, mentioned in Para. 8, ought not to have been made without reference to superior authority. The papers on the subject should be submitted without delay, as it is not clearly defined what the prescriptive rights of villagers to forest produce, may, or may not be.

12. During the last two years, or since Captain Stenhouse has been Officiating as Conservator, the revenues of the Oudh Forests have largely increased. This result is in a great measure due to Captain Stenhouse, who is deserving of great commendation for the manner in which he has worked the Forests—and especially for the large outturn and superior quality of the wood supplied this year.

Mr. Dodsworth appears a meritorious young officer whose services are fully recognised.

LUCKNOW :
The 16th October 1873.

GEORGE COUPER,
Officiating Chief Commissioner, Oudh.

No. $\frac{2472}{107}$

FROM

J. W. NEILL, ESQ.,

OFF. SECRETARY TO THE CHIEF COMMISSIONER,

Central Provinces,

To

CAPTAIN J. C. DOVETON,

CONSERVATOR OF FORESTS,

Central Provinces.

Dated Nagpur, 31*st July* 1873.

SIR,

I am directed to acknowledge the receipt of your report on your department for the past year 1872-73.

Reserved forests.

2. No new areas have been added to the reserved forest lands, and the present extent of the reserved forests would under existing circumstances render any material addition to them inexpedient.

Demarcation.

3. In the matter of demarcating the forests there was no work done during the year that calls for notice. The most important work of this kind that remains to be accomplished is the demarcation of the valuable Sal forests in Mandla and Balaghat ; but before the areas can be determined on and demarcated, it is essential that a survey of the country should be made, and the Chief Commissioner hopes that a reference on this subject that he has made to the Government of India will meet with a satisfactory reply.

4. The large areas of forest land which remains under the management of Deputy Commissioners, and do not form part of the reserved forests, are chiefly indented on to meet the requirements of the population. It is therefore not surprising to find that, comparatively speaking, but little produce was taken from the reserved forests. Still in the matter of bamboos, the reserved forests, and notably the Satpura reserve, have contributed materially to the wants of the people, and in certain localities the Government reserves are almost the only sources whence grass, fuel, and small building wood can be taken.

Protection of forests.

5. *Paragraphs* 11 *to* 13.—The Forest rules appear to provide for all matters in connection with the protection of the reserves, and the rules are said by you to be generally respected, except in the matter of firing the grass in the forests. The practice is only too common, and as it is the direct interest of herdsmen and Gaolis that the grass should be burnt, they are generally credited with the setting it on fire. It will be a matter of great difficulty to eradicate a practice that is so common, and it is doubtful whether it would be quite just to Gaolis to render as you propose their grazing licenses liable to forfeiture if fires occur, seeing that in many of the forests the population is considerable. Still it might be possible to enlist the services of the Gaolis on the side of the department, by granting licenses at higher rates in reserves where fires occur, and by refunding a portion of the fees taken if no fire occurs in the reserve.

6. The number of persons convicted of breaches of Forest rules—619, does not appear large.

K—Y—31—280—520

7. *Paragraphs* 14 *to* 20.—The endeavours of the department to keep fires out of certain selected reserves by keeping up guards and watchmen would appear from your report to have been fairly successful, and the results of the exclusion of fires appear satisfactory. Unfortunately, however, after the close of the year under report a fire did occur in the Bori forest, on the northern side of it, which the Chief Commissioner was himself a witness of, as well as of the damage which it caused. This is to be the more regretted, because the Bori forest has been kept free from fires for several years in succession, and it was there that the benefit of the exclusion of fires was believed to be most apparent. At the part where fire occurred, it seemed to the Chief Commissioner that less precaution than elsewhere had been taken against the occurrence of fire, under the belief that the natural features of the ground were almost a complete protection in themselves. The belief has now been proved to be erroneous, and undue confidence has occasioned disappointment.

Plantations.

8. *Paragraphs* 21 *to* 28.—It is unfortunate again that the localities for plantations were not originally better selected. Airi has been abandoned as a plantation, and Garhakotah is now also condemned. There can be no doubt that the frost last cold season was very unfavourable to young trees, but the past bad management and an unsuitable locality generally seem to have combined to make the Garhakotah plantation a failure.

9. The Chief Commissioner attaches much importance to your remark in paragraph 28, that our teak plantations have hitherto been placed too near the northern limit of the area within which teak will grow, and it is to be hoped that an experience gained by past failures will preserve us from errors in future.

Communication with forests.

10. *Paragraphs* 29 *to* 34.—The Chief Commissioner entirely concurs with you in thinking that roads from the forests to the open country should not be made for the purpose of removing forest produce, until the streams which flow from these forests to the cultivated and peopled tracts have been explored and tried, to see if they will not furnish sufficient means of transport. Roads cannot be made in these Provinces except at very great expense, and the cost of maintaining them when once made is very heavy. It is then most satisfactory to find that the high rates of land carriage compelled the Deputy Conservator of the Southern Division to make a second experiment in floating timber up the Wainganga, which this time met with perfect success, and it seems reasonable to anticipate that the Wardha will allow of timber being floated up it. If success continues to attend these operations the Ahiri forests will become much more valuable than they have hitherto been.

In the Northern Division also water carriage has been more successfully employed than in previous years, and the Chief Commissioner trusts that the Deputy Conservator in charge of the Division will continue his experiments, and test the carrying capacities of the streams that run through the valuable Sal forests.

The smaller rivers in the Western Division require also to be tested, and if they are found capable of transporting timber the advantage to the forests will be very great. You clearly point out in Section V. of your report that the extent to which the forests can be profitably worked depends at present entirely on the cost of carriage, and that it is only this item which prevents a considerable quantity of material from finding a ready sale at numerous markets.

11. At present the timber operations of the Forest department are not extensive, compared with the large area of the forests. In the Southern Division the preparation of some 10,800 teak sleepers ; in the Western Division the preparation of some 5,000 sleepers for the Holkar State Railway, and the transport of some of the stock of the Northern and Eastern Division to Jabalpur, Kamthi and Raipur, were the chief operations performed.

12. The Chief Commissioner is glad to see that the large Satpura reserve is able to meet the large demand for bamboos, and that the revenue which may be expected is so considerable.

Unreserved District Forest lands.

13. The unreserved district forest lands, which taken together cover an area of 19,635 square miles, are from the revenue point of view of the greatest importance, and deserve watchful attention not only on that account but because of the part they play in providing the rural as well as the urban population with the various descriptions of forest produce that are always in demand.

More and more care is being bestowed on these lands from year to year, and improvement in their management is constantly being effected. During the past year a better system was introduced in Seoni, Damoh, Hoshangabad and Narsinghpur, and defects in the working plans of other districts were remedied. The changes have not in all cases, or even in most cases, resulted in an enhancement of the revenue derived by Government, for they were generally made with a different purpose, namely, to lighten the pressure of the forest rules on the agricultural population, when they appeared to inflict hardship, or else to close entirely from cutting, felling, or grazing, lands which were in danger of being exhausted unless time was allowed them to recover.

14. The system in force in the various districts differs according to the situation of the forest lands, their nature, and the circumstances of the population, so that no general review of the system of management can be attempted ; nor is it necessary to say more than a few words on the remarks made by you separately regarding each district.

15. The extent of the unreserved forest lands in Jabalpur is small compared with other districts, smaller than in any district except Wardha and Narsinghpur, yet the Deputy Conservator's remarks as quoted by you, show that for Jabalpur in some part or other of the waste lands every system that has been devised is thought to be necessary to suit particular circumstances.

The Deputy Conservator records his conviction that some parts of the forests must be closed altogether for the present if the land is not to be entirely cleared, and this agrees with what Mr. Jacob, the Deputy Conservator of the Northern Division, in your 9th paragraph, is said to think, viz., that it will be necessary to take up another tract in the Jabalpur district with a view to placing it under a strict system of protection and management. It rests with the Deputy Commissioner to take action as soon as he has matured a plan. In Damoh, the strength of the district forest establishment has been increased, and the Deputy Commissioner will, it is hoped, be able to check undue felling in the forest lands that are being exhausted.

The report on the forest lands of the Bhandara district has not yet reached the Chief Commissioner who has now sent for it. It is satisfactory to find that good results have attended the introduction of the Nimar system of management into Hoshangabad and Narsinghpur.

The Chief Commissioner is not quite satisfied with the manner in which the commutation of forest dues has been effected in the Raipur district. The fixing of the amount taken in commutation at so much on the land revenue gives the commutation rate the appearance of a cess on the land revenue, and he would like it to be understood by landholders and ryots alike, that forest dues have nothing whatever to do with the land revenue. The Raipur arrangements have undergone several modifications since their first introduction and still further modifications may be desirable. The Commissioner of the Division will be addressed on the subject as well as on the question of the Bilaspur revenue.

The arrangements in the Seoni district were finally elaborated with great care by Major Thomson, the Deputy Commissioner, under the direction of the Commissioner, and the Chief Commissioner believes them to be deserving of a careful trial. Grazing dues taken from Tandas and traders have, however, been abolished.

The improvement of the Wardha system of management is now engaging the attention of the Deputy Commissioner.

Financial results.

16. The financial results may be summed up as an expenditure of Rs. 2,47,837-5-10 and a revenue of Rs. 4,81,673-7-1, which leaves a surplus of Rs. 2,33,836-1-3.

Compared with previous years these results are certainly satisfactory, and your explanations in paragraph 77 show that the actual results are even more favourable than they appear to be.

17. Of the revenue the following distribution between reserved and unreserved forests has to be made :—

		Rs.
From reserved forests	...	73,705
Do. unreserved do.	...	4,07,968

Small as the revenue from the reserved forests is, it showed a very considerable increase over the previous year, and if communication can be established with these forests without the necessity of expending large sums on roads, the revenue will doubtless increase rapidly.

The unreserved forest lands are now bringing in as large an income as the Chief Commissioner expects to see for some years. Indeed from the smaller income which some of the districts have yielded during the past year, and from the proposals which are now more frequently being made to close certain blocks and areas against cutting, or grazing, or both, and which must almost necessarily result in a falling off of income, the Chief Commissioner cannotthink that any material expansion of the revenue from the unreserved forests can be expected for a considerable period, while some decline of the revenue would not surprise him. It is only comparatively recently that the idea of reserving the District forest lands and allowing portions of these time for renovation, while the remainder supply the wants of the public, has taken root and has influenced Deputy Commissioners in their management of those lands ; and any restriction on the removal of forest produce is almost certain to lessen the amount removed, and consequently the sum paid to Government for the produce removed.

18. It is satisfactory to find from Statement 23 that the outstandings due to the department as well as the liabilities by the department were considerably smaller at the close of the year than at its beginning. The outstandings due to the department might, however, admit of even greater reduction, and they should be adjusted as early as can conveniently be done.

19. Your explanations in paragraphs 82 to 84 are so far satisfactory that they show how the value of the stock brought on the stock Return during the year was not more than Rs. 36,312. Actually, the value of the stock brought on the books during the year was very much greater, and the value of the stock received during the past year has been reduced to make up for a depreciation of the stock of 1871-72. It seems to the Chief Commissioner that it would have been better to have reduced the opening balance to the extent of the depreciation, and to have explained the matter in a footnote to Statement 25.

This same matter affects the figures in Form 28.

20. On the whole, the Chief Commissioner thinks the financial results of the year satisfactory; they will certainly compare favourably with those of previous years, and much good work has been done that does not admit of being entered in the Financial Statements. The Chief Commissioner regrets that the paucity of officers in the department compelled the abandonment of the plan of attaching Forest Officers as Forest Assistants to Deputy Conservators. The experiment had only begun when it had to be stopped. It is to be hoped that at some future time it may again be tried with a better chance of success. Mr. Morris has also under consideration whether some means may not be devised of utilizing more than at present the services of Forest Officers in the general administration of the country, more especially during the months when they have little or nothing to do, and their time is almost wholly unoccupied. They could at such periods furnish valuable assistance to the frequently overworked staff of Administrative and Executive Officers. The question cannot, however, be fully considered in this place. The Forest Officers themselves are in no way wanting in zeal or energy, and enforced inaction can have no charm for them, and in concluding this review the Chief Commissioner desires me to express his acknowledgments to yourself and the Officers who have worked under you for the good service performed.

I have the honor to be,

Sir,

Your most obedient Servant,

J. W. NEILL,

Offg. Secretary.

Y—30 278—520

No. 555.

FROM

CAPTAIN J. C. DOVETON,
CONSERVATOR OF FORESTS,
Central Provinces,

To

THE SECRETARY TO THE CHIEF COMMISSIONER,
Central Provinces.

Dated Nagpur, 10th June 1873.

SIR,

I have the honor to submit the Report on the Forest administration for the official year ending 31st March 1873.

FIRST PART, SPECIAL.

HEAD I.—STATE AND LEASED FORESTS.

SECTION I.

Area, boundaries, &c.

2. During the year under report there has been no increase or diminution in the area of the State forests. These areas as they stood at the commencement and close of the year are exhibited in the Form No. 1 prescribed by the Government of India.

Demarcation.

3. As no additions have been made to the State forests during the year there is little to record under this head. The demarcation of the Hathku reserve by a cleared line and heaps of stones which was in progress when the report for 1871-72 was submitted has been completed.

The Pandratola reserve has also been further defined by the erection of masonry pillars at all angles on the boundary.

4. The re-demarcation of that portion of the Satpura reserve west of the Pench river is now in progress, and will, it is believed, be completed by the close of this open season. For the reasons given in my No. 1102 of 6th November 1872, the further sub-division of this forest into small blocks according to the Revenue Survey lines has been abandoned, and as the different blocks into which the forest will be divided for working purposes will only be defined as each block is opened for felling, there is nothing to record under the head of internal demarcation.

5. The final settlement of the Sal bearing areas to be reserved in Mandla and Balaghat has not, for the reasons specified in my No. C-503 of 15th March 1873 to your address, been practicable, but as the survey of the portions of the districts of Mandla and Balaghat comprising the Sal forest will be taken up after the close of the coming rains, there is reason to hope that by the close of the succeeding season the Sal reserves will have been demarcated and placed on a proper footing.

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Section II.

Requirements of the Population, &c.

6. The requirements of the people are principally for small wood, bamboos, fuel and grass, and have been chiefly met from the Unreserved forests. The following Statement shows to what extent the State forests have contributed to the supply of these necessaries :—

No.	Reserves.	Bamboos.	Small building wood.			Fuel.		Grass.		Miscellaneous.	
			Number of logs.	2 bullock carts.	4 bullock carts.	2 bullock carts.	4 bullock carts.	2 bullock carts.	4 bullock carts.	2 bullock carts.	4 bullock carts.
1	Saoligarh ...	57,216	224	203	60	...	..	141	16	92	21
2	Kalibhit ...	800	26	476	...	.	..	...	...	3	...
3	Kamapur ...	325		27	...		...	86	. 1	...	...
4	Raja Borari ...	52,952	62	155	25	159	10	139	78	35	...
5	Punassa . .	147,120	...	71	1	..	..	26	...	...	..
6	Satpura Sonawani Division	39,287	...	...	...	240	..	4,151	...	74	...
	Korai " ...	102,556	50	145	...	388	.	3,338	...	1	...
	Western " ...	290,454	...	10	...	837	..	9,130	...	2	..

7. For the reserves of the Northern and Eastern Divisions no details are given as they were closed against felling, and the quantity of dry wood and grass removed is insignificant.

In the reserves of the Sagar Division only a small quantity of green wood for the manufacture of ploughs was allowed to be felled. The dry wood or fuel was commuted for, and the actual quantities removed are not known.

8. By a mistake in the office of the Deputy Commissioner of Chanda the right to levy dues on unreserved wood cut in the Moharli reserve was in June last leased out to a contractor for one year, and there is therefore no departmental record of the produce removed. For small wood and bamboos, however, there has been a very considerable demand, and the maintenance of the supply of the former description of produce will necessitate a rigid control over the felling operations from the date on which the lease expires.

9. Mr. Jacob is of opinion that to meet future demands for ordinary forest produce in the Northern Division, it will be necessary to take up another tract in the Jabalpur district, with the view of placing it under a strict system of protection and management.

10. Information regarding the extent to which the reserves were taken advantage of for grazing purposes is given in the accompanying form prescribed in your No. 2421-264 of 8th November 1871. As this subject will have again to be referred to under the head of Unreserved forests, I will now pass on to the next Section.

Section III.

Protection.

11. During the year under report there have been no changes in the arrangements for the protection of the forests. The rules published in 1865 under Act VII. of that year have continued in force, and have been generally regarded by the people. There is, however, one offence which is still of common occurrence and which it is almost impossible to bring home to the guilty parties. I refer to the lighting of fires in the State forests. The burning of the grass in the State forests is, it is believed, to be attributed to different classes of people in different parts of the Provinces, but all circumstances seem to point to Gaolis and herdsmen as being the principal offenders. The introduction in the grazing permits of a clause subjecting the holders to forfeiture of the permits in case of fire occurring in the forests in which their cattle are grazing would doubtless modify the evil, but it may be expected that any such stipulations will be strenuously opposed by the parties whose interests are involved, and some caution will therefore be necessary in introducing them. The result of the measure will be tested by experiment in the Satpura and Punassa reserve after the current grazing permits have expired.

12. The number of prosecutions under the Forest Act, and the convictions obtained, will be found in the prescribed Form No. 5, which forms an appendix to the Report.

Section IV.

Management and improvement.

13. Statement No. 4 shows the forest areas under protection from fire. From this Statement, which exhibits those areas only that have been successfully protected, the southern portion of the Bowergarh reserve has been omitted, as the attempt to protect it during last hot season failed, and its protection on the uniform plan elsewhere adopted was not undertaken during the current season, as the limits of the area to be taken up for this purpose required some modification which could not be effected in time. This tract presents more than ordinary difficulties in the matter of protection from fire, there being within it three private estates, and the boundary being not very easy of access.

14. The attempt to keep fire out of the additional areas taken up for the purpose last year in the Satpura reserve proved a failure, not from any particular difficulties that had to be encountered, but from the want of the supervision of a controlling officer when the preliminary arrangements were made. The failure was clearly traced to the negligence of subordinates, who were punished in proportion to their responsibility. This season one large block on the east of the Seoni and Jabalpur road, comprising the most valuable portion of the Satpura reserve, and including both the tract from which fires were previously excluded, and the piece of forest last referred to, has been placed under protection. Up to the present time, with the exception of a fire spreading over a few acres while the boundary line was being cleared, the attempt has proved successful.

15. The arrangements for excluding fire from the Bori, Jagmandal, and Choharigogarh forests have been attended with equal success as heretofore, while with trifling exceptions fires have been excluded from Bijeragogarh, Sigrampur, Barela, and Block No. 1 of the Punassa reserve.

In the Hathibari forest a fire broke out in the vicinity of the plantation, but was extinguished before it reached the plantation or the better portion of the forest. The damage done in this instance was very trifling.

16. In the Ahiri forest from Divisions 2 and 3 of the Bemaram block fires have this season been excluded. The rank vegetation which springs up during the monsoon, combined with the excessive dryness of the soil at other seasons, render the task of protecting these forests one of more than ordinary difficulty.

17. In those reserves that have been sufficiently long under protection from fire, the effect of the measure is apparent in the increased luxuriance of the forest growth, and the reproduction of young timber trees of different kinds. As regards the reproduction of teak, however, the results seem to vary greatly in different forests. In the Bori forest the increase in the number of young teak springing from seed is without doubt considerable, and young trees of this species are to be found of all sizes, though those from 1 to 6 or 7 years of age appear to be most plentiful. But circumstances appear generally to favour reproduction in Bori,—the soil is good, the rain-fall abundant, and the forest is better stocked with seed-bearing teak than the other reserves.

18. Regarding the reproduction of teak in Jagmandal and Choharigogarh, Mr. Jacob writes as follows :—

> " Although I found numbers of seedlings apparently healthy in December and January which were evidently the growth of the previous rains, yet in scarcely a single instance have I satisfied myself of the discovery of a three or four years sapling."

19. In accordance with the orders conveyed in No. 1234 of 12th August last, from the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce, forwarded to this Office with your No. 3777-205 of 21st October 1872, special a report on the progress of teak reproduction in the natural forests will shortly be submitted, and it is therefore unnecessary for me here to dwell upon the subject.

The past year's operations under this head are marked by a decrease in the cost, which will be observed on comparing the accompanying Statement No. 4 with Statement No. 3A. attached to the Report for last year. In Ahiri and Bori only are the charges excessive. In the former there are greater difficulties to be contended with, and the area being smaller, the charges must be proportionately higher. The comparatively high charges in Bori have attracted the attention of the Divisional Officer, and I hope to be able to show a decrease in the cost for the current year.

20. In some of the reserves, especially in the Western Division, much might be done for the good of the forests by the removal of some of the inferior produce, but in the present condition of the local markets any undertaking of this sort would result in a deficit quite out of proportion to the good that would result. In the Western Division the demand at present is only for the better description of forest produce the growth of which it is desired to foster.

Plantations.

21. About 200 acres of land have been taken up for plantation purposes at Telinkheri near Nagpur. Of this area 26 acres were planted last monsoon, partly by sowing on low ridges and partly by transplanting from a nursery. Owing, however, to the delay in the land being placed at the disposal of this Department, neither the sowing nor the transplanting was completed as soon as it should have been, while from the same cause the sowing and transplanting was not simultaneously carried out over the whole area. As a natural con-

sequence the results have not been uniform, the young trees varying in height from four inches to two feet, while some from the first sowing which have had the advantage of a small amount of irrigation have attained a height of five feet and upwards. But though in the plots last planted the young trees are small, the area is tolerably well stocked, and I have no doubt that by the close of the coming rains the young trees will have attained a fair average size.

22. The principal trees with which the area has been stocked are sirras (*acacia sirrua*), ghorar (*acacia elata*), babul (*acacia arabica*), sissoo (*dalbergia*), and teak (*tectona grandis*). Slightly raised ridges were prepared 12 feet apart on which seed was deposited, while midway between the ridges transplants were inserted. Rows of tur were sown between the transplants and the ridges with the view of obtaining a quick return from the land. The latter object was, however, defeated, as the severe blight which attacked this particular species last season reduced the value of the crop to something nominal. It was found that with the exception of teak and sissoo all the species planted thrive best, if the seed is sown where the young trees are to stand. The expediency of transplanting the latter two species is, however, still open to doubt.

23. The total cost of the plantation, including the nursery (in which there is still a good stock of young trees and bamboos), and the cost of a hut, tools, &c., has amounted to Rs. 830-14-0, or deducting the return for produce of the year, Rs. 806. I should, however, remark that by far the largest portion of the expenditure is on account of the nursery and transplanting, and that with the experience gained, it will, I believe, be possible to raise such mixed plantations at a cost per acre not exceeding Rs. 12 in the first, and Rs. 4 in the second year, after which judicious thinning will be all that is necessary.

24. Of the plantations established in previous years, that at Baka Barda has thriven best. The severe frost during the past cold season has, however, caused sad havoc among the young trees. The transplants of 1871 being the youngest suffered most; the percentage of deaths in this part of the plantation is considerable, but cannot be correctly recorded till after the rains, as it is more than probable that a number now apparently dead will shoot out again on the setting in of the monsoon, while others will throw up strong shoots from the root. Fortunately no expenditure was incurred in extending this plantation during the last rains.

25. Although the Airi plantation had been abandoned as the seat of further planting operations, it was thought expedient to give it the benefit of another year's protection from fire. The attempt however failed, though the arrangements made for the purpose were as perfect as they could be, except at a cost quite disproportionate to the object to be attained. After the grass was burnt a rough enumeration of the young trees was made, the result of which showed that out of 32,490 trees existing at the last enumeration only 5,540 remained alive. The fire may have killed a few, but the bulk of the deaths are in my opinion to be attributed to frost and the general non-suitability of the locality.

26. In the Garhakota plantation a number of trees taken from the old nursery were put out during last rains to fill blanks, which together with the protection of the existing trees cost Rs. 537. On visiting Garhakota at the close of last rains I found that the whole plantation had been badly managed, which to some extent accounted for the want of success. But the situation is by no means favourable, and circumstances that have since come to my notice lead me to believe that it will never pay to raise teak artificially in this locality. Further expenditure on this account has therefore been stopped.

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27. Some experiments were carried out to ascertain the effect on teak of cutting back the tap roots with the view of fitting the young trees for transplanting after they have attained the age of one year. The result was not, however, satisfactory, as many of the young trees died from the operation, while all of them suffered more or less from it. It was, however, late in the season when the instructions to carry out this experiment reached me, and the failure may possibly be attributed to the experiment not being carried out at the proper season. It should, however, be noted that other species treated in the same manner at the same time did not suffer. It would appear that the operation must be performed at one of two seasons, viz. either at the setting in of the rains, or in November when the young trees will have temporarily ceased to grow. To carry out experiments this season 200 healthy young trees from the stock now in the Telinkheri nursery will be set aside; but the actual result of the experiment cannot be ascertained till after the trees have been transplanted in the rains of 1874.

28. The effects of frost referred to in a preceding para. cannot fail to remind one that the plantations hitherto established are within no great distance of the extreme northern limits within which teak grows. This remark also applies to many of our natural forests, and I believe that much of the unsoundness of the teak in the northern forests of these Provinces is to be attributed to this circumstance. Should it be found expedient to continue the artificial propagation of teak, I would be inclined to advocate the selection of more southerly and less elevated situations than those hitherto tried.

Works for the opening out of the forests.

29. Some repairs were carried out on the roads between the Sal forests and Mandla in the Northern Division and on the lower portion of the road from the Ahiri forest to Chanda. Until the practicability of the natural outlets from the forests has been fairly tested, it is decidedly inexpedient that any large expenditure should be incurred in improving the lines of land transport. There are numbers of small rivers connecting the forests with the open country, but with a few exceptions they have not been utilized for the transport of timber or forest produce of any kind, while in the case of those rivers that have been used for this purpose the records of expenditure on each work have not until lately been kept sufficiently distinct to furnish any reliable data regarding the cost of water transport. On the development of a cheap system of transport the increase of the revenue from the State forests, at any rate, is in a great measure dependent, while the system on which the different forests are to be worked must to some extent be regulated by the description of produce that it will pay to take into market. Under these circumstances the subject is one of the greatest importance, and demands all the attention that can be devoted to it.

30. Hitherto the Wainganga and Wardha rivers have been considered quite impracticable for the transport of timber up-stream. An experiment was tried in a previous year and failed, but the fact that the present rates of land carriage would not admit of the Ahiri teak being brought to Nagpur or Kamthi and sold at a profit led to a second attempt being made during the current open season. The result of this experiment is as follows.—

From Wangapelli on the Wainganga, 8 miles distant from the forest, large timber has been transported 30 miles up-stream at a cost of 3½ annas per ton per mile, notwithstanding that in this part of the river there are seven difficult barriers besides numerous small ones. For the next 30 miles up to Ballarpur, large timber has been conveyed at a cost of 1 anna per ton per mile. The

total cost, including land carriage from the Forest depot to the river, has been below Rs. 10 per ton, against Rs. 27 per ton, the lowest cost at which the same material could be conveyed by hired carts to the same point, which is on the highroad from Ahiri to Chanda. These results are most satisfactory, and great praise is due to Mr. Thomson for the diligence and perseverance he has displayed in overcoming the numerous difficulties that had to be encountered.

31. The next 28 miles up the Wardha from Ballarpur have also been tested and found practicable for timber transport at a morderate cost Arrangements have been made for testing during the coming monsoon the suitability of some of the small streams leading from the forest to the Wainganga for floating purposes, and there is now every reason to hope that Ahiri teak for the Kamthi market will be conveyed the entire distance from the forest by water.

It has also been determined to endeavour to bring some of the inferior woods found in the Ahiri forest, such as Bijasal and Kaim, up to the borders of Berar for sale, but as the timber has first to be seasoned, another year must elapse before the result can be ascertained.

32. In the Northern Division Sal scantlings have been transported down the Narbada from Sakrighat to Goarighat within 5 miles of Jabalpur, a distance of about 55 miles at Rs. 4¼ per ton, against Rs. 10¾ per ton, the minimum cost at which scantlings of the same size were transported down the same portion of the Narbada in previous years.

33. The suitability of the several small rivers leading from the Sal forests to the Narbada for timber transport has still to be tested, though I entertain no doubt on the subject, provided that the necessary supply of bamboos or other materials can be procured for buoyage. Some timber is now being collected on the Banjar, and it is hoped that the point will be practically tested during the rains of 1874.

34. In the Western Division nothing has actually been accomplished under this head, but arrangements have been made for testing the suitability of the Sonibhadri, Denwa, Moran and Tapti rivers for timber transport. The first two of these rivers lead from the Bori forest, the Moran flows between and within a short distance of Bowargarh and Saoligarh. All these rivers are connected with the Narbada and if they can be utilized there will be no difficulty in transporting timber and small wood from the forests mentioned to the Indore Railway bridge on the Narbada, where on the opening of the Railway a good price should be obtainable for every description of timber. The Tapti leads from the Kamapur forest to Burhanpur and on into Kandesh, where small building timber should command a good price.

Section V.

Yield and working of the forests.

35. As matters stand at present the yield of the State forests is regulated rather by the cost of carriage than by the capabilities of the forests. That most of the State forests contain a considerable amount of material that would find ready purchasers if it could only be brought to market and offered for sale at sufficiently low rates, is a point on which there can be no doubt. As has been already stated endeavours are being made to establish a less expensive system of transporting the produce of these forests, and until this object can be attained it seems inexpedient to push on the working of the forests by Government agency except to meet special demands for public purposes or from which a certain and quick return may be expected. Under these circumstances the

timber operations of the past year were confined to the preparation of sleepers, the felling and collecting of timber for that purpose, the felling, collecting and transport of small timber and bamboos for the Kamthi market, and the transport of timber already collected and on stock at depots in or near the forests to market.

36. In the Ahiri Division 22,922 cubic feet of teak timber were collected for sleepers; 10,807 sleepers have been prepared; 24,727 cubic feet of sleepers and timber had up to the close of the year been conveyed over the most difficult part of the line of transport from Alapelli towards Warora and Nagpur In the Northern Division no timber was felled, but 5,593 Sal sleepers were transferred from the depots near Topla to Mandla and Sakrighat, and 5,351 sleepers were floated from Sakrighat to Goarighat near Jabalpur. It is hoped that these sleepers will be disposed of during the coming monsoon either as sleepers or by converting them into Karris for the Allahabad market.

37. In the Western Division the timber operations have been confined to the preparation and delivery at Khandwa of 5,000 sleepers for the Holkar (State) Railway and the felling and collecting of a small quantity of wood to take down the Tapti during the coming rains.

In the Eastern Division 3,906 cubic feet of teak timber were brought from the Bagnadi depot to Kamthi, and 1,285 from Hathibari to Raipur and sold. As an experiment a small quantity of bamboos, &c. were brought into Kamthi. The net proceeds from the sales were more than double the rates levied in the forests, and the produce being quickly disposed of, the undertaking was in a mercantile point of view most remunerative. The chief object of bringing small produce into the Kamthi market by Government agency is to find employment during the rains for the carriage that must be kept up for work at other seasons in the forests. It is further hoped by this means, combined with the working of the Pench river for fuel, which is being tried this season, to raise a considerable revenue from the Satpura reserve, and at the same time to confer a boon on the lower classes of the community by supplying the most necessary articles at rates far below those which prevail at present.

38. The number of bamboos removed by purchasers from the Satpura reserve has fallen from 562,000 in 1871-72 to 432,000 in 1872-73; but this is accounted for by the fact that portion of the Korai sub-division on which there was the heaviest demand in 1871-72 has been reserved in 1872-73 to be worked by Government agency. Moreover previous to 1871-72 the felling of bamboos throughout the reserve had not been permitted for several years, and the probability is that the quantity removed in 1871-72 was exceptionally large. It is satisfactory to note that the demand on the Sonawani Division from which a vast supply can be obtained has increased. The sale of bamboos from this reserve promises to become a lively source of revenue, and if some of the small streams leading from the forest to the open country can be taken advantage of for their transport, it seems probable that from this source alone sufficient will be raised to cover the expenditure on the forest and leave a net profit to Government.

39 The quantity of timber and small wood removed from the blocks open for felling was small, though somewhat in excess of that taken in the previous year.

40. I may here advert to the working of the machinery with which the sleepers are being cut at Alapelli. The want of a supervising officer experienced in the working of such machinery was at first a great disadvantage, and necessitated the employment of two European Overseers whose services were entertained

with the Chief Commissioner's approval. To the disadvantage of having to employ European Overseers in a place like Alapelli I need scarcely advert. The arrangement was expensive and tied the Divisional officer to the depot work. Since then, however, experience has been gained, and Mr. Thomson has established his independence by becoming personally acquainted with all necessary details connected with the working of the machinery.

All European supervision, excepting that of the Deputy Conservator and his Assistant, who remain alternately at the Depot, has for some time been dispensed with, and a well-trained body of natives has been organized for the working of the machinery.

The vertical saw frame has been brought to work up to its utmost sawing capacity. The circular saw machine has been improved for cutting straight and expeditiously by the addition of a moveable table worked on rollers constructed at the Forest work-shop. A saw sharpening machine purchased, and another constructed at the Forest work-shop, have been erected and set working. A cistern capable of holding a week's supply of water was constructed, whereby the engines are fed at much smaller cost and a regular supply of water maintained.

41. The vertical saw frame as has already been reported is not new, nor has it any of the modern improvements for regulating the feed, keeping the timber down on the tables and bringing it up to the saws, but notwithstanding these circumstances and the fact that the sleepers are being cut from unsound trees which greatly enhances the cost of cutting by machinery, the cost of cutting is less than half what it would be by manual labour, were the latter procurable at a moderate cost. On the whole the expenditure on timber operations in the Ahiri Division was at the beginning of the year high, but since the commencement of the current open season scarcely a month has passed without some improvement by which the cost of work has been reduced, and with the facts now before me I look forward to timber operations in the Ahiri forests combined with the working of the Moharli reserve bringing a good return to Government.

Head H.—Unreserved or District Forests.

42. The area of the unreserved forests as it stood at the commencement and close of the year is exhibited in the accompanying Form No. 2.

Jabalpur district.

43. The unreserved forests of this district, extending over an area of 316 square miles, have during the year under report brought in a revenue of Rs. 24,155-11-5. Excepting in the Murwara Tahsil, where farming leases were granted, the dues on forest produce were commuted for. Regarding the forest administration in this district the Deputy Commissioner states as follows :—

"The experience of the last year has shown that some changes suitable to local conditions might be introduced with advantage. Briefly I would propose to divide the unreserved forests into four classes.

"1st.—Forest that might for the present be altogether closed and allowed to improve and reproduce themselves.

"2nd.—Forests in which the State dues might most conveniently be levied direct.

"3rd.—Tracts to be worked as hitherto on the Commutation system.

"4th.—Tracts for the usufruct of which yearly farming leases might be granted.

"With regard to the first class the knowledge gained during the year I think fully establishes the necessity of a measure of the kind. It is very plain that in the Jabalpur district the value of forest land is beginning to be understood and the need of rest appreciated. But where private forests are closed, the neighbouring Government jungles suffer in proportion, and if measures are not now adopted some kinds of forest produce must eventually become in certain localities a monopoly in the hands of a few private individuals. It will perhaps be wise by timely precautions to guard against such a contingency."

Damoh District.

44. The forest lands of this district cover an area of 856 square miles. A map illustrating their distribution accompanies the report. A considerable portion of the forest lands are situated in the south of the district, but the position of a large portion of these is favourable for the supply of fuel and small wood to the inhabitants of the more thickly populated tracts.

The revenue, however, continues small, having amounted during the past year only to Rs. 12,615-7-8, which is equal to a return of pie 4·41 per acre. Some modifications in the Commutation system at present in force are being made, and will, it is believed, result in an increase of revenue.

45. Major Thomson in his report remarks that owing to the limited strength of the establishment there has been a great want of check over the felling in these tracts, and that in parts of Pargana Singargarh the forests have been almost wiped out. Major Thomson is of opinion that some portion of these wooded lands merit special care and attention, and that a system for giving periodical rest to the forests should be introduced.

Sagar District.

46. The unreserved forests of the Sagar district comprise an area of 729 square miles. They are divided into 417 tracts, distributed pretty evenly over the whole district, and are chiefly valuable as sources for the supply of fuel and small building wood.

47. The revenue has fallen from Rs. 27,345 in 1871-72 to Rs. 23,364 in the past year. The decrease is owing to certain tracts being taken up as State forests at the close of the preceding year.

Bhandara District.

48. In accordance with the wishes of the Officiating Chief Commissioner Mr. Foster, Assistant Conservator, was deputed in 1871-72 to examine and to report on the condition of the forest lands in this district The inspection of these tracts was commenced in the latter part of that year and completed by the setting in of the rains of 1871-72.

49. Mr. Foster's report led to the conclusion that the forest lands were gradually becoming less productive, and that of the area inspected (nearly the whole of the unreserved forests) there was only one small tract in which anything approaching the dimensions of timber was to be found, this latter tract being situated within a short distance of the proposed Chhattisgarh line of Railway.

The report, together with my suggestions for the introduction of a system of rotation, was forwarded to the Commissioner of the Division in September last. The proposals made would undoubtedly involve a loss of revenue for some years, and the expediency of making this sacrifice in favour of the forests has not yet been decided on.

50. The area of the forest lands is 548¼ square miles. A large portion of these are conveniently situated for the supply of small wood, fuel, &c, and the value of some portion of these will be doubtless increased if the construction of the Chhattisgarh line is carried out.

51. The revenue for the past year was Rs. 29,766-3-8, or pie 16·28 per acre.

Bilaspur District.

52. There are in Bilaspur 649 square miles of unreserved forests, nearly the whole of which are open for the removal of small wood, fuel, &c. on certain conditions. The revenue derived from them is, however, excessively small as compared with the forest area and the population of the district. The accounts for the year show only Rs. 5,486 as having been realized from all sources, but the Deputy Commissioner reports that the Government demand was for Rs. 10,656-4-8, of which Rs. 4,519 remained unrealized at the close of the year. The comparatively large outstanding balance is attributed to the fact of permits being granted up to the last day of the year, and the people consequently hastening to remove the produce before paying for the permits. The demand of Rs. 10,656-4-8 is only equal to pie 4·9 per acre of forest land. From a reference to Form No 5 it would appear that offences against the Forest rules are more common in this than in other districts except the Upper Godavari.

Upper Godavari District.

53. The forests of this district, extending over an area of 1,624½ square miles, brought in during the past year a revenue of Rs. 12,682-10-9 against Rs. 16,748 realized in the previous year. The actual decrease is, however, less than it would appear from the foregoing figures by Rs, 3,028, as in the previous year Rs. 1,514 were recovered and credited in advance. The actual decrease is under the heads of 'grazing dues' and 'timber removed by purchasers.' The decrease under the first head results from the ravages of the cattle disease in the preceding year, and that under the latter head to the smaller quantity of timber purchased from the Rakapelli forests. Had it not been for the unfortunate arrest of the Forest Darogah on a charge of which he was subsequently acquitted, which prevented the transport to market during the year of 2,000 logs of timber brought to river, the revenue would in all probability have stood at over Rs. 20,000.

54. The number of prosecutions under the Forest Act have been larger than in any other districts.

55. From a report recently received from the Deputy Commissioner it appears that notwithstanding the large number of teak trees felled in previous years there is still a fair quantity of standing timber of this species between the Indrawati and Pranhita rivers and most conveniently situated for transport to Rajamandri. Should the proportion of teak to the area be found to be good, it will be expedient to adopt some special measures for its protection.

Chanda District.

56. The forest realizations during the past year amounted to Rs. 26,350 or pie 3·50 per acre of forest land. The revenue from produce exported has been higher, and from that consumed locally lower, while the total of receipts has been Rs. 587 below that of the preceding year. This decrease is to be attributed to the reversion to the old system of allowing the collection of Mowah on the condition that one-fourth be paid in kind to the Malguzars, the Malguzars paying one anna per house to Government.

57. The Government dues on forest produce for local consumption are commuted for by the Malguzars, who pay two annas on each house to Government, and in return are allowed to take two annas on each cart load of forest produce other than grass and fuel that comes into their villages. As remarked by the Deputy Commissioner, the power thus placed in the hands of grasping landholders may be abused to the loss of the ryots. It is not, however, certain that any improvement in this respect can at present be effected.

Nimar District.

58. The unreserved forest lands of the Nimar district cover an area of 1,658 square miles and are more extensive than those of any other district in the Provinces. The tract comprising the hills on the north bank of the Tapti in the south-east corner of the district con-

tains a fair supply of miscellaneous timber and small wood, but on the whole the Nimar unreserved forests are believed to be area for area less productive than those of any other district except Nagpur, Wardha, Bhandara and Narsinghpur.

59. The system of revenue collection introduced by the late Captain Forsyth, and which has hitherto been so strongly upheld by most officers who have had the opportunity of forming an opinion regarding it, has continued in force with the exception that the commutation licenses have been given in favour of each house instead of each family. The grounds for this modification were given in para. 78 of the report for 1871-72. It was hoped that the most systomatic arrangements for the revenue collection in the west of the district which became practicable on the settlement of the disputed boundaries between Nimar and Khandeish would lead to a considerable increase of revenue, while similar results were expected from the better guarding of the passes leading into Berar. Major Loch appears to have gone to considerable pains to arrange for the issue of licenses for forest produce to the inhabitants of the adjoining districts of Kandeish and Berar, partly with the view of raising the forest revenue, but quite as much for the accommodation of the inhabitants of those districts. As regards the supply to Berar, his efforts appear to have been opposed by the Deputy Commissioner of Elichpore; while in Khandeish the demand for such produce as Nimar could yield was found to be smaller than was anticipated.

60. The forest revenue instead of rising as was expected fell to Rs. 40,310, or Rs. 7,205 below that of the previous year. Of this decrease Rs. 1,755 is accounted for by the decrease in the number of commutation licenses issued which resulted from the modifications in the system already referred to, but it is believed that the main decrease is to be attributed to the following weak points in the system :—

1st.—The possibility of one license being used for the supply of the wants of more than one household.

2nd.—The possibility of produce removed on a commutation license for the supply of personal wants being stored and finally taken for sale on a Malguzari pass.

Chhindwara District.

61. The forest revenue of this district amounted to Rs. 15,218, against Rs 17,631 realized in the previous year. The decrease probably results from a smaller area having been kept under direct management.

Balaghat District.

62. A combined system of commutation, direct management and farming exists in this district. The commutation is for small wood, fuel and grazing. The amount to be paid to Government is fixed according to the number of ploughs in each village the inhabitants of which desire to avail themselves of the Government forests for the supply of their requirements.

63. The tract of forest lying between the crest of the hills above Burha and the Uskal river which had been much overworked was in 1870 closed against felling in the hope of its becoming a valuable source of supply for the well populated villages below the ghats. The protective arrangement above referred to has continued in force up to the present time, the cutting of grass only being permitted. In like manner a small tract in the Lanji Pargana known as the Balkari jungles, which contains a good supply of young wood, has been protected for the same period.

64. The forest revenue has risen from Rs. 17,434 in 1871-72 to Rs 21,723 in 1872-73. The increase is partly due to the sale of felled timber to the Public

Works Department. The Deputy Commissioner remarks that the system of commutation requires revision, which will probably result in a decrease in the revenue.

Raipur District.

65. The forest revenue, which had fallen from Rs. 45,034 in 1869-70 to Rs. 26,590 in 1871-72, has again risen slightly, the realizations for the year under report amounting to Rs. 28,629. A commutation system has prevailed, under which agriculturists have paid for the supply of the forest produce required by them at the rate of one anna per rupee of land revenue, produce removed for sale being paid for at special rates on the quantities taken. In certain isolated patches the right to collect the dues was leased. The right to collect dues on lac, gum, and such minor articles of trade in the rest of the forests, was also leased.

Nagpur District.

66. The forest tracts in Bheogarh and Dongartal have continued under direct management, while the right to collect dues on forest produce removed from the rest of the forest lands has been leased. The lease-holders were however prohibited from felling dhamin, rohun, tendu, seevun and tinus, in addition to the woods already reserved. The revenue realized is only Rs. 830 less than in the previous year.

Seoni District.

67. The Deputy Commissioner reports that the tracts known by the name of the Amagarh Pukara jungles, with an area of 9,803 acres, has for the last four years been worked on the coppice system for the supply of the station. Four blocks comprising an area of 9,023 acres in the south of Seoni which had been drawn upon too freely for the Kamthi market, were marked off to be worked only in rotation, one block having been kept open during the year. Other eight blocks in Seoni and Katangi with an area of 63,007 acres have also, with the Chief Commissioner's approval, been marked off to be worked in rotation, of these two blocks were kept open during the year.

The working of the tracts thus set aside has been kept separate from the rest of the forests in which the Commutation system has prevailed.

68. Some trifling changes in the system of Commutation have taken place as will be seen from the following extract of Captain Ward's report:—

"The term 'nistar' was selected to mean the use of forest products, &c. Villages dependent upon Government forests for their 'nistar' were assessed to pay duty. The rates fixed for this assessment were—

		R.	A.	P.	
1.	Per plough	0	8	0	per annum.
2.	Per house of non-agriculturists	0	3	0	do.
3.	Grazing dues per 100 head of cattle in the area open to commutation ...	7	0	0	do.
4.	Do. in the tracts reserved from commutation	12	8	0	do.
5.	Do. on buffaloes	18	12	0	do.
6.	Do. on cattle of other districts. ...	10	0	0	do.

In consideration of this assessment the 'nistar' will consist of, for agriculturists—

1. Mulgas,
2. Dubnahs,
3. Thooni,
4. Putoli,
5. Bureri,
6. Small bamboos for fencing,
7. Bukhul,
8. Firewood,
9. Teak leaves,
10. Grass.
11. Wood,

for agricultural purposes.

This is subject to certain restrictions. Timber more than two feet in diameter cannot be cut without permission, and then only on payment of the prescribed duty. No wood of the prohibited kinds can be touched.

For non-agriculturists the 'nistar' comprises—

1. Firewood,
2. Grass,
3. Leaves,
4. Bukhul,
5. Kuria sticks and thorns for fencing. Subject to the same restrictions.

Again for I.—glass manufacturers, II.—iron smelters, III.—basket makers, the following special rates were fixed:—

I.—Rs 12 per annum.
II.—Rs. 3 do.
III.—Rs. 3 do.

Mowha, chironji and minor forest products were separately dealt with, and in order to obviate the many quarrels which had arisen from previous arrangements, they were farmed out to the neighbouring Malguzars at fixed rates, in lieu of putting them up to auction The assessment of these rates for commutation and for the use of the minor forest products, has been carried out by the Tahsildars and jungle Darogah; the Malguzars collect the amounts due, and receive Rs. 5 per cent on the collections as a reward for their trouble. This arrangement as above detailed is in fact very similar to the system referred to in the latter part of your para. 81, as having been adopted in Katangi on the recommendation of the Tahsildar.

The Seoni forest management may therefore be described as an elaborate system of commutation divided into classes—

1st.—For agriculturists,
2nd.—For non-agriculturists,
3rd.—For manufacturers.

This is supplemented by the Kham management of some 80,000 acres with the aid of a special establishment; and the realization in Seoni khas of duties on forest produce at fixed rates levied at chowkis located on every road. To these may be added grazing dues levied from Tandas and traders at the rate of half pie per head of cattle for each stage, and grazing dues levied from people resorting to Government lands during the rainy season for grazing purposes. Add permits given to cut timber and the various heads of the system have all been mentioned. Grazing dues on Tandas have, however, been discontinued from 1st of the current year."

69. There is a large difference between the receipts for the year under report and those for 1871-72, which is chiefly owing to the large outstanding at the commencement as compared with those at the close of 1871-72.

Betul District.

70. The commutation that was effected with the inhabitants of 596 villages for the supply of their wants in the shape of small building materials, firewood, &c. does not appear to have worked smoothly, and the Deputy Commissioner entertains doubt as to the expediency of continuing the system.

71 The bulk of the revenue was derived from produce exported to Berar and Hoshangabad, on the borders of which districts a system of direct management has prevailed. The realizations for the year under report stand at Rs. 31,706, against Rs. 29,046 in 1871-72.

Wardha District.

72. The Forest administration in the Wardha district has scarcely been satisfactory. There has been a fall in the revenue, and from the Deputy Commissioner's report it appears that the protective arrangements adopted have caused considerable inconvenience to the people, who have hitherto obtained their supplies of forest produce from, and grazed their cattle in the tracts protected. There should, however, be no difficulty in devising a scheme by which the further denudation of the forest lands would be prevented without causing any material hardship to the people.

Narsinghpur District.

73 The amount realized during the year shows that the introduction of the Nimar system has been financially successful.

74. The following is a comparative Statement of the revenue from the unreserved forests of the different districts during the past two years :—

DISTRICTS.	1871-72.				1872-73			
	Total Revenue.			Revenue per acre.	Total Revenue			Revenue per acre.
	Rs.	A	P.	Pie	Rs.	A	P.	Pie
Jabalpur ...	8,459	3	0	8·48	24,155	11	5	22 93
Damoh ...	13,164	3	3	4·61	12,615	7	8	4·42
Sagar ..	27,345	7	10	10·57	23,364	4	8	9·61
Mandla ...	24,695	10	4	1·56	34,063	4	9	2·17
Narsinghpur ...	5,593	3	3	8·56	8,149	7	9	12·34
Balaghat ...	17,434	13	11	4·45	21,723	6	8	6·30
Nagpur ...	20,728	10	2	16·97	19,878	2	1	16·28
Wardha ...	11,824	13	6	53·66	7,166	8	8	32·18
Chanda ...	27,355	7	10	3 64	26,350	10	5	3·50
Sironcha ...	16,860	9	1	3·11	12,642	10	9	2·33
Raipur ...	26,590	9	7	5·79	28,629	2	8	6·23
Bilaspur ...	16,981	15	5	7·87	5,486	6	10	2·53
Hoshangabad ...	15,204	4	6	5·01	22,532	4	10	7·46
Betul ...	20,046	5	4	6·32	31,705	15	9	10·00
Nimar ...	47,515	12	10	8·59	40,310	12	2	7·29
Seoni ...	52,076	3	11	21·72	44,209	4	2	18·34
Chindwara ...	17,631	10	5	9·50	15,218	8	4	6·80
Bhandara ..	29,342	1	6	16·03	29,766	3	8	16·26
Sambalpur ...	...	..	...	..	..	..	..	...
Total Receipts ..	3,98,851	1	8	...	4,07,968	5	3	...

R S V m—17—122-520

SECOND PART, GENERAL.

HEAD I.—FINANCIAL RESULTS.

75. Form 21 exhibits in detail the receipts and expenditure of the Department.

76. The actuals of the past year as compared with the regular estimate are as follows:—

	Regular estimate.	Actuals.		
	Rs.	Rs.	A.	P.
Revenue	4,61,677	4,81,673	7	1
Expenditure	3,60,000	2,47,837	5	10
Surplus	1,01,677	2,33,836	1	3

The excess of the actual revenue over the estimate results chiefly from certain sales of timber which could not be calculated on when the estimate was submitted, and partly to the raising of the rates levied in portions of the unreserved forests. The difference between the actuals and estimated expenditure, amounting to Rs. 1,12,163, results from the following causes. The sum of Rs. 20,000 provided for the purchase of the Ahiri forest was not disbursed before the close of the official year. The expenditure on timber operations in certain parts of the Provinces it was found expedient to curtail pending the establishment of a more economical system of transport. The demarcation of the Sal forests having been postponed, the funds provided for this purpose were not spent, while of the allotment of Rs. 16,000 placed at the disposal of District Officers for improving the boundaries of the unreserved forests, Rs. 2,950 only were laid out before the close of the year, while much work has been accomplished at lower rates than it has hitherto been necessary to pay.

77. As compared with the actuals of the previous year the figures stand thus:—

	Actuals 1871-72.	Actuals 1872-73.
	Rs.	Rs.
Revenue	4,47,764	4,81,673
Expenditure	2,31,603	2,47,837
Surplus ...	2,16,161	2,33,836
		2,16,161
Difference in favour of the year ...		17,675

But as in the current year there has been a heavy expenditure on account of sleeper operations from which there has as yet been no return, while over Rs. 7,000 had to be disbursed on account of previous years, it will give a more correct idea of the results of the year if the surplus be compared with the average annual surplus during the five preceding years; the latter amounted to Rs. 1,33,834, which the surplus for the past year exceeds by nearly a lakh of rupees.

78. Of the total revenue for the year the sum of Rs. 73,705-1-10 only was derived from the State forests. This amount is small as compared with the expenditure, but is nevertheless over Rs. 24,000 in excess of the amount realized in the previous year, while there is good reason to hope that the revenue from this source will now continue to rise steadily.

79. As regards the revenue from the unreserved forests there has been a considerable fluctuation in the amounts realised in different years in some districts, but the total revenue from the whole of the unreserved forests is Rs. 9,117 in excess of the revenue for the previous year. This fluctuation in the amounts realised in the same districts in different years is generally to be attributed to the revenue for certain years being enhanced by the realisation of arrears, and sometimes to the occurrence of periodical events which lead to a larger consumption of forest produce.

80. Notwithstanding that the unreserved forest revenue has continued to rise, the annual increase has fallen from Rs. 65,736, the amount by which the revenue for 1869-70 exceeded that for 1868-69, to Rs. 9,117 in 1872-73,—a circumstance which would seem to indicate that the revenue from this source had nearly reached the maximum that can be expected for some time to come; but though the annual increase may be small for some years, there is every reason to hope that the unreserved forest revenue will continue to rise.

81. From Form 23 it will be observed that the liabilities are less by Rs. 5,681-0-7 at the close than at the beginning of the year, and in like manner, notwithstanding the large advances made during the year, the outstandings at the close of the year are less than at the commencement by Rs. 16,823-14-5. It will be observed from Form 23A. that Rs. 2,866-5-6 remain outstanding at the close of the year on account of sales. Of this amount Rs. 1,738-5-0 is the balance of outstandings at the beginning of the year. It is possible that of the latter sum it may be necessary to write off as bad debts Rs. 526-9-0. Regarding the remaining sum due by the Great Indian Peninsula Railway Company there has been a long correspondence, which it is hoped will soon lead to an adjustment.

82. Form 24 exhibits in detail the timber brought to depots from the forests and then the timber transported from forests to station depots including such as may have reached intermediate depots by the close of the year. I would, however, explain that the 10,807 teak sleepers shown under the first head in the Ahiri Division were obtained by conversion of timber previously on stock, and are merely entered to avoid a discrepancy between the figures in this Form and those given in Form 25. In the latter form the rough material previously on stock and from which these sleepers were cut, had to be written off under the head of loss and the finished material obtained shown as receipts. The latter arrangement is necessary in order to balance the timber accounts.

83. Form 25 shows the value of timber brought on stock plus Rs 14,566 which represents the increase in the book value of stock on being transported to stations from depots in and near the forests, to be only Rs. 36,312, but this is merely a book valuation and though it must stand for the financial Statement it renders the results therein shown untrue and tells materially against the results of the year. It is therefore desirable that some explanation of this circumstance should here be given. During the year 1871-72 some sweeping reductions in the book value of stock were made, it was then hoped that there would be no more heavy reductions on this account, but further enquiries showed that the cost of removing the stock from certain depots had not been fairly taken into consideration when the stock in them was valued. In the case of 5,740 scantlings shown at Forest depots in Mandla it was found that an expenditure of

Rs. 14,350 was necessary to bring their value up to that at which it had been recorded. In this manner the book valuation of the stock at the close of last year 1871-72 and consequently at the commencement of the current year, was over Rs. 30,000 in excess of what it should have been, and for this reason in order to make the totals on either side of Form 25 agree it has been necessary to show the increase in value by transport to station depots as over Rs. 30,000 less than it really was.

84. Another circumstance which has told against the results of the year's timber operations as exhibited in Form 25, is the very low rate at which the sleepers prepared for the Wardha Valley Railway have been brought on stock, the rates being below the actual cost price to the department and vastly below the value of the same quantity of material cut to scantlings adapted to the native market. This has been necessary as the price to be paid for these sleepers has not yet been finally settled, while for various reasons in a financial point of view considerable risk attends all sleepers operations.

85. Form 26 exhibits the timber sales effected during the year and the amounts realized. The selling rates varied greatly in different parts of the Provinces, but averaged Rs. 53½ per ton of 50 cubic feet.

86. Form 27 gives the cost of timber brought on stock. The establishment charges have been calculated in some instances on the proportion of the timber expense to the whole expenditure under major head A., while in others where the bulk of the revenue has been collected in small sums, the establishment charges with which the timber is debited are to the total establishment charges as the timber expenses are to the total expenditure under head A. and revenue taken together. The percentage for establishment charges is high in proportion as the timber operations in some divisions have been small. I would, however, remark that were it possible to estimate with accuracy the amount of supervision devoted to these particular operations the percentage on account of establishments would, I believe, be much lower.

87. I now come to Form 28, which has been drawn up in accordance with the instructions conveyed in letter No. 25-20 of 4th January 1873, from the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce. From the footnote to the specimen Form forwarded to this Office, I persume that the difference between the value of stock at the commencement and close of the year is intended to refer to timber stock only, the difference between the value of the opening and closing balance of other stock only amounts to Rs. 379 and has not therefore been taken into account. The sum of Rs. 6,742 given in the Form, is the estimated cost according to current rates of felling, collecting and transporting a sufficient quantity of timber to sufficiently good markets to ensure its realizing Rs. 10,769 or the difference between the value of the opening and closing balance of the timber stock. The transport and sale of small wood and bamboos is, however, in many instances much more remunerative and would require a much smaller outlay to ensure the realization of the sum last specified. I am, however, inclined to think that it would be more satisfactory to debit or credit the transaction of the year with the actual difference in the value of stock. Owing to there being no head under which the amounts disbursed and treated as final expenditure in previous years, but recovered in work during the year can be shown the results exhibited in Form 28 appear more satisfactory than they really are; were these sums taken into account the net reselts of the year would be reduced to Rs. 2,17,874. On the other hand if the circumstance noted in para. 83 could be taken into consideration the net results of the year would be over Rs. 30,000 in excess of the last mentioned amount, notwithstanding that the teak sleepers have been brought on stock at less than the cost price and at the low rate of Rs. 33 per ton.

88 The net results of the year as exhibited in Form 28 are represented by a sum of Rs. 2,34,698 against Rs. 1,43,592, the average of the net results of the five preceding years. Taking into consideration all the circumstances herein set forth, the financial results of the year appear to be the most satisfactory that the Department has yet been able to show, while as far as I can judge from the facts before me there is every prospect of the condition of the Department in this respect steadily improving.

HEAD II.—General Remarks.

.89. The system of Departmental audit introduced at the close of 1870, has continued in force and has worked well. The increasing revenue and expenditure connected with the unreserved forests necessitated the introduction of a more complete system of accounting for monies derived from, and expended on these forests. This has been done, and it is satisfactory to note that the accounts of expenditure on these forests have for the first time been received up to date and embodied in the annual returns which accompany the report.

90. From the facts herein recorded it will be seen that every endeavour has been made to give effect to the instructions conveyed in letter No. 8-746 of 28th June 1872, from the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce, forwarded to this Office under your No. 2859-130 of 13th August last. The cost of timber operations has in some instances been greately reduced while the effect of the stricter control over the expenditure on other works is apparent. The inferior timber stock is gradually being disposed of, and measures are being adopted to regulate the future supply of timber and small wood for different markets according to the demand.

91. The want of capital and enterprize among the timber dealers in these Provinces is, however, a great drawback to an export trade in such produce as the forests of these Provinces can best supply. Some endeavours are now being made to induce people to undertake the export for sale of forest produce of different kinds by allowing credit for its value for a limited time, provided that sufficient security can be given to ensure recovery of the money.

92. Of the Officers of the Department, the three Deputy Conservators have all worked well and zealously. Mr. Thompson has had the best field for distinguishing himself and has not failed to avail himself of it. Of the junior Officers I would mention Mr. McKee and Mr. Richardson as having done best. Messrs. Dunbar and Hight, the two new Assistants appointed from England in December last, promise to become excellent Forest Officers. The former proved himself a valuable Assistant to Mr. Thompson in the Ahiri Division, to which he was attached up to the date of his transfer to Bombay. The limited number of Officers attached to the Department in these Provinces rendered it necessary temporarily to abandon the scheme for giving District Officers Forest Assistants, and it is doubtful whether the arrangement will be found practicable until circumstances admit of a much stronger staff of gazetted officers being maintained.

I have the honor to be,
Sir,
Your most obedient Servant,

J. C. DOVETON,
Conservator of Forests,
Central Provinces.

No. 1.

Area of Reserved Forests.

Reserved Forests.	Area in 1871-72.		Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.	
	S. M.	A			S. M.	A.
Bijeragogarh ...	32	..	...	..	32	..
Sigrampur ...	10	24	...	..	10	24
Barela ...	10	7	...	..	10	7
Jagmandal ...	55	..	...	..	55	..
Choharigogarh ...	5	..	...	..	5	..
Bori ...	37	..	...	..	37	..
Raja Borari ...	250	..	...	..	250	..
Bowargarh ...	118	..	...	..	118	..
Saoligarh ...	100	..	...	..	100	..
Kalibhit ...	260	..	...	..	260	..
Kamapur ...	166	..	...	..	166	..
Hathibari ...	3	31	...	..	3	31
Kantara Nala ...	5	54	...	..	5	54
Satpura ...	456	14	...	..	456	14
Garhakota ...	4	52	...	..	4	52
Tigora ...	...	71	...	..	...	71
Ranjir ...	14	81	...	..	14	81
Rampura ...	11	54	...	..	11	54
Hathku ...	28	96	...	..	28	96
Punasa ...	143	31	...	..	143	31
Pandratola ...	7	75	...	..	7	75
Moharli ...	150	..	...	..	150	..
Total ...	1,869	90	...	..	1,869	90

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No. 2.

Area of Unreserved Forests.

Unreserved Forests.		Area in 1871-72		Added during the year.		Excluded or transferred to other heads.		Total remaining in 1872-73.	
		S. M.	A.	S. M.	A.	S. M.	A.	S. M.	A.
Balaghat	..	1,174	487	..	..	140	353	1,034	134
Betul	..	951	..	..	..	..	...	951	...
Bhandara	..	549	..	..	..	...	...	549	...
Bilaspur	..	647	..	2	..	..	...	649	...
Chanda	..	2,254	..	1	..	1	...	2,254	..
Chhindwara	..	556	320	114	320	..	...	671	...
Damôh	..	855	..	1	..	..	...	856	...
Hoshangabad	..	909	..	..	..	4	...	905	...
Jabalpur	..	299	..	17	..	..	...	316	...
Mandla	..	4,719	..	..	..	11	...	4,708	...
Nagpur	..	366	160	..	..	..	...	366	160
Nimar	..	1,659	..	..	..	1	...	1,658	...
Narsinghpur	..	196	..	2	..	..	...	198	...
Raipur	..	1,377	..	..	..	..	...	1,377	...
Sagar	..	776	..	..	..	47	...	729	...
Seoni	..	719	..	4	..	..	...	723	...
Sironcha	..	1,624	360	..	..	..	...	1,624	360
Wardha	..	66	70	..	437	..	...	66	507
Total	..	19,698	117	141	117	204	353	19,635	521

No. 3.

Area of Plantations.

Plantations.	Area in 1871-72.			Total cost.			Area added during 1872-73	Amount expended during 1872-73.			Total area up to 1872-73			Total expenditure incurred to up to 1872-73.		
	Acres.	Rds.	Poles	Rs	A.	P.	Acres.	Rs.	A.	P.	Acres.	A.	P.	Rs.	A.	P.
Baka Barda	95	3	28	12,038	0	10	...	855	9	2	95	3	28	12,893	10	0
Garhakota	28	2	25	7,161	2	9	...	537	3	3	28	2	25	7,698	0	6
Hathibari	130	...	...	21,928	15	10	...	884	0	5	130	0	0	22,813	0	3
Sonawani	1	...	17	781	4	9	...	...	...	...	1	0	17	781	4	9
Sackata	5	1	7	1,460	12	7	...	242	14	10	5	1	7	1,703	11	5
Telinkheri	...	...	...	...		...	27,110	830	13	11	27	1	10	830	13	11
Total	260	3	37	43,370	4	9	27,110	3,350	9	7	288	1	7	46,720	14	4

No. 4.

Area of Forest tracts protected from fire.

Forest tract protected from fire.	Area in 1871-72.	Total cost			Additional area protected in 1872-73	Amount expended in 1872-73.			Total area protected up to 1872-73.	Total expenditure incurred up to 1872-73.		
		Rs.	A.	P.		Rs.	A.	P.		Rs.	A.	P.
Bijeragogarh ..	20,480	599	0	2	...	312	13	9	20,480	911	13	11
Sigrampur ..	6,555	362	10	11	...	190	13	0	6,555	553	7	11
Barela ...	..	..	...	..	6,446	171	12	6	6,446	171	12	6
Jagmandal ..	35,200	13,408	5	10	...	937	9	10	35,200	14,345	15	8
Choharigogarh ...	3,200	3,774	4	1	...	150	4	10	3,200	3,924	8	11
Bori ...	23,680	6,810	1	3	..	876	2	10	23,680	7,686	4	1
Hathi bari ..	2,123 75	1,332	9	0	...	248	13	9	2,123·75	1,581	6	9
Satpura Reserve ..	1,240	1,573	3	10	31,470·47	500	7	2	32,710·47	2,073	11	0
Nos. 3 and 4 Divisions of Bemaram tract of Ahiri forest	...	...	..	..	6,467	475	14	7	6,467	475	14	7
Punasa Reserve (block No. 1).	..	..	..	..	7,680·0	36	0	0	7,680·0	36	0	0
Total ..	92,478·75	27,860	3	1	52,063 47	3,900	12	3	144,542·22	31,760	15	4

No. 5.

Prosecutions for breaches of the Forest Rules.

	Number of prosecutions.		Convictions obtained or still pending.	
	Number of cases.	Number of persons.	Number of cases.	Number of persons.
Northern Division ...	3	6	3	6
Western " ...	11	30	11	30
Eastern " ...	3	5	2	3
Central " ...	3	4	3	4
Nimar " ...	11	20	9	18
Sagar " ...	1	1	1	1
Damoh District ...	5	19	5	17
Betul " ...	8	10	8	10
Balaghat " ...	1	1	1	1
Seoni " ...	38	98	26	62
Nimar " ...	27	41	24	27
Sagar " ..	21	54	16	32
Mandla " ...	1	11	...	...
Jabalpur " ...	2	5	2	5
Nagpur " ...	1	1	1	1
Bhandara " ...	10	21	10	20
Chanda " ...	7	13	6	7
Narsinghpur " ...	5	6	5	6
Raipur " ...	5	13	3	10
Bilaspur " ...	48	148	48	140
Wardha " ...	4	5	4	5
Chhindwara " ...	16	46	16	46
Hoshangabad " ...	1	1	1	1
Upper Godavari District ...	25	176	20	167
Total ..	257	735	225	619

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FORM A.

General State Forest Return for 1872-73.

	Name of Forest.	Area in acres.	External Boundary. Length in miles.	External Boundary. Cost of maintenance. R.	A.	P.	Internal Boundary. Length in miles.	Internal Boundary. Cost of maintenance. R.	A.	P.	Number of cattle permitted to graze.	Population, including women and children.	Area protected from fire.	Area cleared of parasites and croppers.	Area in which matured timber has been cut.	Area from which bamboos and other minor products have been removed.	Total expenditure on Forest, including share of Deputy Conservator's salary. R.	A.	P.	Income of the Forest from all sources. R.	A.	P.
	Northern Division.																					
1	Bijeragogarh ...	20,480	44 25	141	12	9	...	...	...	...	...	...	20,480	...	...	...	9,223	1	5	405	0	0
2	Barela ...	6,446	14 25	162	5	6	...	...	...	...	...	...	6.446	.	...	...	3,939	5	0	6	0	0
3	Jagmandal ..	35,200	41 0	500	1	10	...	..	...	...	...	...	35,200	...	..	...	6,216	11	3	2,309	0	8
4	Choharigogarh ...	3,200	6 03	94	12	10	...	...	...	...	...	...	3,200	...	...	...	4,912	0	1	746	2	1
5	Sigrampur ...	6,555	22 50	98	6	6	...	...	...	...	15	25	6,555	...	...	. .	4,209	8	9	23	13	3
6	Ahiri Plantation ...	...	10 02	40	5	3	...	...	...	...	...	...	...	..	..	...	222	7	10	...	...	...
	Western Division.																					
7	Bori ...	23,680	28 ¼	338	10	6	19 ¼	404	2	0	...	...	23,680	...	...	...	9,214	8	10	7,370	12	4
8	Bowargarh ...	75,520	72 ½	...	...	...	14	137	11	6	8,090	529	. .	...	...	75,520	7,208	8	11	5,373	15	10
9	Kalibhit ...	49,920	78	...	...	...	16	...	...	...	8,272	3,242	...	...	...	49,920	4,273	8	6	7,854	10	9
10	Raja Borari ...	153,320	98	...	...	...	26	...	...	...	19,551	4,439	...	..	...	153,320	5,213	12	4	7,391	7	5
1	Kamapur ...	106,240	167	81	8	0	21 ½	...	...	...	1,248	1,325	...	...	...	106,240	4,063	0	7	3,311	15	5
	Saoligarh ...	64,000	100	...	...	...	137	...	...	...	15,365	269	...	...	...	64,000	8,461	8	4	5,756	14	7
	Central Division.																					
13	Sa..pura ...	29,193,139	324	254	12	0	247 25	22	6	0	21,901	426	32710· 74	...	3659 98	255,560 94	13,660	6	1	7,596	8	9

	Eastern Division.																							
14	Hathibari	...	212,375	7	50	260	13	0	...	...	...	...	..	33	2123	75	...	...	...	5,753	1	2	2,648	10	11
15	Kantara Nala	...	3,548	6	12	160	9	3	...	..	..	...	...	2	...		...	...	...	2,837	1	4	...	...	...
	Nimar Division.																							
16	Punasa	...	91,720	81		296	0	0	45	...	...	...	10,086	220	7680	0	...	...	91,720	6,666	0	0	2,442	9	9
	Sagar Division.																							
17	Garhakota	..	2,899	10		382	0	0	...	...	...	...	397	22	...		1,394	...	1,505	2,351	14	3	1,951	3	5
18	Tigora	.	459	3		84	0	0	...	...	...	...	...	...	...		..	...	459	905	15	6	9	3	0
19	Ranjir	...	9,481	33	60	225	2	3	10	...	...	...	2,938	86	...		...	...	9,481	1,008	9	9	458	15	1
20	Ranipura	...	7,386	44	12	184	0	0	...	...	...	..	3,702	...	...		...	...	7,386	967	7	6	474	9	3
21	Hathku	...	18,538	126	0	264	0	0	..	...	.	...	8,625	...	...		...	...	18,558	1,613	15	1	1,103	15	6
	Chanda Division.																							
22	Moharli	...	96,000	116	75	118	3	6	14	65	4	6	...	...	...		...	...	...	294	5	3	...	...	...
	Balaghat District.																							
23	Pandra Tola	...	4,960	17		875	11	3	...	...	...	...	...	...	...		...	...	...	875	11	3	...	...	...

No. 21.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Summary of Revenue and Expenditure in the different Divisions during the year 1872-73.

Classification.	Direction.			Northern Division.			Western Division.			Chanda Division.			Eastern Division.			Central Division.		
RECEIPTS.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
I. Sale of timber at Depôts ...	...	...	...	3,799	7	11	12,479	4	1½	...	...	...	13,683	13	9	13	8	0
II. Sale of timber removed by purchasers	...	...	...	400	3	8	8,129	11	4	...	...	...	...	...	...	3,390	11	8
III. Duty on foreign timber ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
IV. Permit fees ...	...	...	...	386	0	0	5,303	12	0	...	...	...	...	...	...	212	11	6
V. Grazing dues ...	...	...	...	...	...	...	8,474	13	0	...	...	...	15	6	6	2,893	8	10
VI. Sale of fruits, &c. ...	1,609	14	11	...	...	..	1,834	8	9	...	...	...	...	...	...	987	1	3
VII. Sale of confiscated timber ...	...	...	...	...	...	...	17	10	0	...	...	...	...	...	...	2	4	0
VIII. Fines and forfeitures ...	...	...	...	24	0	0	99	8	3	...	...	...	...	...	...	28	12	6
IX. Miscellaneous ...	141	14	8	31	8	6	720	8	10½	...	...	...	12	0	0	67	15	0
Total Receipts ...	1,751	13	7	4,641	4	1	37,059	12	4	...	...	...	13,711	4	3	7,596	8	9
CONSERVANCY AND WORKING.																		
1. Timber expenses ...	...	...	...	17,879	3	8	6,472	8	10	66	0	0	1,987	2	7	375	1	10
II. Purchases of Stock and Cattle ...	776	0	0	349	7	0	131	9	6	...	...	...	13	8	0	600	6	7
III. Feed and keep of Cattle ...	2,916	5	0	1,566	2	1	2,242	7	5	...	...	...	596	8	2	656	7	9
IV. Rent of leased Forests ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
V. Charges in collecting revenue on grass, &c. ...	...	...	...	23	1	0	...	...	...	...	...	...	...	...	...	...	...	...
VI. Plantations ...	2,664	12	5	156	9	6	855	9	2	...	...	...	884	0	5	307	5	10
VII. Forest work ...	...	...	...	4,969	14	5	4,920	15	0	64	5	5	518	1	9	2,412	1	6
VIII. Forest Survey ...	...	...	...	...	...	...	1,161	4	7	34	3	1	...	...	...	44	9	9
IX. Experiments on timber ...	...	...	...	21	15	3	...	...	...	...	..	...	...	...	...	...	...	...
X. Communications and Buildings ..	...	...	...	4,212	9	5	570	6	0	210	12	9	96	3	0	280	0	0
Total Conservancy and Working ...	6,357	1	5	29,178	14	4	16,354	12	6	375	5	3	4,095	7	11	4,676	1	3
ESTABLISHMENTS.																		
I. Salaries ..	18,872	5	5	14,508	12	3	18,077	0	0	1,026	13	11	5,213	2	0	7,009	14	11
II. Allowances ...	1,837	7	2	1,369	13	3	3,358	4	11	68	13	6	1,023	8	8	1,103	2	2
III. Contingencies ...	1,437	3	0	1,702	7	7	2,369	14	1	237	2	4	1,067	4	9	866	9	3
Total Establishments ...	22,146	15	7	17,581	1	1	23,805	3	0	1,332	13	9	7,303	15	5	8,979	10	4
GRAND TOTAL EXPENDITURE ...	28,504	1	0	46,759	15	5	40,159	15	6	1,708	3	0	11,399	7	4	13,655	11	7

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No. 21.—(*Continued.*)

Classification.	Nimar Division.			Sagar Division.			Ahiri Division.			Total.			District Forests.			Grand Total.		
RECEIPTS.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
I. Sale of timber at Depôts ...	..	...	..	594	6	7	2,503	14	10	33,074	7	2½	2,506	2	11	35,580	10	1½
II. Sale of timber removed by purchasers	805	13	0	407	8	6	..	..	..	13,134	0	2	54,366	7	2	67,500	7	4
III. Duty on foreign timber ...	..	...	..	...	...	...	.	..	..	...	...	...	...	...	...	...	...	...
IV. Permit fees ...	184	13	0	504	15	4	..	..	..	6,592	3	10	2,16,805	8	7	2,23,397	12	5
V. Grazing dues ...	1,380	12	0	1,491	8	6	..	..	..	14,256	0	10	86,155	15	10	1,00,412	0	8
VI. Sale of fruits, &c. ...	50	0	0	920	4	3	..	..	..	5,401	13	2	41,955	1	9	47,356	14	11
VII. Sale of confiscated timber ...	0	1	0	...	..	...	..	.	.	19	15	0	395	12	8	415	11	8
VIII. Fines and forfeitures ...	16	2	9	14	6	9	..	..	..	182	14	3	906	0	4	1,088	14	7
IX. Miscellaneous ...	5	0	0	64	12	4	..	..	..	1,043	11	4½	4,877	4	0	5,920	15	4½
Total Receipts ...	2,442	9	9	3,997	14	3	2,503	14	10	73,705	1	10	4,07,968	5	3	4,81,673	7	1
CONSERVANCY AND WORKING.																		
I. Timber expenses ...	621	10	5	...	...	...	18,179	2	5	45,580	13	9	1,925	13	10	47,506	11	7
II. Purchases of Stock and Cattle ...	327	3	0	49	6	0	6,496	7	8	8,743	15	9	369	14	10	9,113	14	7
III. Feed and keep of Cattle ...	129	15	8	33	4	9	6,505	6	3	14,646	9	1	...	...	...	14,646	9	1
IV. Rent of leased Forests ..	..	...	..	...	...	..	..	..	..	...	...	...	...	...	...	...	...	...
V. Charges in collecting revenue on grass, &c. ..	..	...	..	99	12	0	..	..	..	122	13	0	30,567	1	11	30,689	14	1
VI. Plantations ...	..	...	..	537	3	3	..	..	..	5.405	8	7	386	15	11	5,792	8	6
VII. Forest work ...	505	12	0	750	2	3	419	7	8	14,560	12	0	170	12	0	14,731	8	0
VIII. Forest Survey ...	..	...	..	25	8	10	..	..	..	1,265	10	3	...	..	...	1,265	10	3
IX. Experiments on timber ...	..	...	..	1	5	0	..	..	..	23	4	3	...	...	...	23	4	3
X. Communications and Buildings ...	15	4	0	551	3	10	1,008	15	7	6,945	6	7	2,950	4	11	9,895	11	6
Total Conservancy and Working ...	1,599	13	1	2,047	13	11	32,609	7	7	97,294	13	3	36,370	15	5	1,33,665	12	8
ESTABLISHMENTS.																		
I. Salaries ...	4,056	0	0	4,106	10	8	9 006	0	0	81,876	11	2	8,946	3	1	90,822	14	3
II. Allowances ...	722	15	5	526	12	5	1,523	6	7	11,534	4	1	...	...	...	11,534	4	1
III. Contingencies ...	287	3	6	166	9	1	1,064	3	9	9,198	9	4	2,615	13	6	11,814	6	10
Total Establishments ...	5,066	2	11	4,800	0	2	11,593	10	4	1,02,609	8	7	11,562	0	7	1,14,171	9	2
GRAND TOTAL EXPENDITURE ...	6,666	0	0	6,847	14	1	44,203	1	11	1,99,904	5	10	47,933	0	0	2,47,837	5	10

No. 22.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Dr. *Annual Abstract Account of the Forest Department, Central Provinces, for the year* 1872-73. *Cr.*

Heads of Account.	Amount. Rs.	A.	P.	Heads of Account.	Amount. Rs.	A.	P.
To Cash in hand on 1st April 1872	17,353	13	0	By Expenditure of the Department	2,47,837	5	10
Revenue received	4,81,673	7	1	" chargeable to Provincial Services on account of Forms printed	11	3	6
Remittances from State Treasuries	2,53,153	14	9	Remittances to State Treasuries	4,60,472	8	5
Advances recovered	40,401	8	11	Book Transfer on account of Timber supplied to Department of Public Works	13,545	6	10
Work done by Department of Public Works adjusted by Book Transfer	251	15	6	*Government of India.*			
Military Department, Bombay.				Book Transfer on account of Timber supplied to Public Works Department, Holkar State Railway ...	9,718	8	0
Book Transfer on account of conveying Stationery from Bombay to Nagpur	16	12	0	Advances made	38,962	15	10
Central Gaol, Nagpur.				Refund of revenue	38	13	0
Book Transfer on account of Forms printed ...	11	3	6	Transferred to expenditure Berar by Book Transfer ...	395	7	8
Government of India.				Transferred to expenditure Provincial Services ...	620	0	0
Uncovenanted Family Pension Fund	411	12	0	Cash in hand on 31st March 1873	23,474	14	8
Military Fund	1,207	4	7				
Income Tax	573	2	10				
Income Tax credited to Berar	7	5	7				
Military Department, Madras.							
Stamp fee on Regimental Commission... ...	15	0	0				
Total ...	7,95,077	3	9	Total ...	7,95,077	3	9

No. 23.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers for 1872-73.

Divisions.	Department Debtor.									Department Creditor.									Balance due.					
	At commencement of year.			Recoveries in cash and value of supplies, and work done during year.			At close of year.			At commencement of year.			Payments made during year.			At close of year.			To Department (outstanding.)			By Department (liabilities).		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Direction	...	..	...	2,512	6	0	2,512	6	0	...	...	...	2,554	8	0	2,554	8	0	42	2	0	...	...	...
Northern Division ..	7,642	11	6	288	3	11	7,930	15	5	29,375	1	4	5,112	4	0	34,487	5	4	29,117	9	5	2,561	3	6
Western "	96	1	6	2,185	3	3	2,281	4	9	2,418	4	10	1,081	7	6	3,499	12	4	1,218	7	7	...	...	...
Chanda "	...	...	..	983	7	3	983	7	3	1,562	2	7	72	0	0	1,634	2	7	650	11	4	...	...	...
Eastern "	...	...	...	1,784	14	6	1,784	14	6	1,533	13	5	789	3	2	2,323	0	7	538	2	1	...	...	...
Central "	...	..	..	...	...	...	...	...	...	103	3	6	8	11	6	111	15	0	111	15	0	...	...	...
Nimar "	...	...	...	4,750	0	0	4,750	0	0	..	..	...	5,320	4	8	5,320	4	8	570	4	8	...	...	...
Sagar "	...	...	...	1	6	0	1	6	0	1	6	0	...	...	...	1	6	0	...	...	...	...	...	...
Ahiri "	498	0	4	27,015	7	5	27,513	7	9	1,676	3	8	27,267	8	0	28,943	11	8	1,430	3	11	...	...	...
Total ...	8,236	13	4	39,521	0	4	47,757	13	8	36,670	3	4	42,205	14	10	78,876	2	2	33,679	8	0	2,561	3	6
Deputy Commissioners ...	5	6	9	14,548	12	8	14,554	3	5	14,933	3	1	721	0	4	15,654	3	5	1,100	0	0	...	...	...
Grand Total ...	8,242	4	1	54,069	13	0	62,312	1	1	51,603	6	5	42,926	15	2	94,530	5	7	34,779	8	0	2,561	3	6

NOTE.—If from the opening balance of outstandings the opening balance of liabilities be deducted, the closing balance exhibited in the Statement for 1871-72 will be arrived at. This circumstance is explained by Government of India letter No. 397 of 4th March 1873.

No 23 A.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Statement of Outstandings on Sale Accounts.

Divisions.	Outstanding at commencement of year.			Value of sale during the year.			Total.			Recoveries made during the year.			Outstandings.			Remarks.
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	
Direction	...	...	...	1,959	7	7	1,959	7	7	1,751	13	7	207	10	0	
Northern Division ...	2,238	5	0	3,291	14	11	5,530	3	11	3,377	6	1	2,152	13	10	
Western "	...	..	...	37,059	12	4	37,059	12	4	37,059	12	4	...	...	...	
Chanda "	230	10	9	...	..	...	230	10	9	230	10	9	...	...	...	
Eastern "	...	..	...	13,881	4	3	13,881	4	3	13,711	4	3	170	0	0	
Central "	...	..	..	7,700	6	5	7,700	6	5	7,596	8	9	103	13	8	
Nimar "	...	...	...	2,442	9	9	2,442	9	9	2,442	9	9	...	...	...	
Sagar "	465	2	6	3,764	11	9	4,229	14	3	3,997	14	3	232	0	0	
Ahiri "	...	...	.	2,503	14	10	2,503	14	10	2,503	14	10	...	...	...	
Total ...	2,934	2	3	72,604	1	10	75,538	4	1	72,671	14	7	2,866	5	6	

Abstract.

Outstanding on account of advances to Contractors ... ... Rs. 34,779 -8 0
Outstanding on account of Sale ... ... " 2,866 -5-6

Total ... Rs. 37,645-13-6

K.X.—31—287—520

No. 24.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement of Timber brought to Depots from the different Forest Divisions during 1872-73.

Name of River or Division.	Forest.	Description of Timber.	Pieces.	Cubic Feet.			Totals of each Division.		REMARKS.
							Pieces.	Cubic feet.	
Norther Division.	Sakrighat ...	Teak logs.	10	218	0	0			
do.	Gwarighat ...	do.	13	179	0	0			
do.	Narbada depot	do.	10	188	0	0			
do.	Gwarighat ...	Sal sleepers	6	19	0	0			
do.	Narbada depot	do.	4	9	0	0	43	613	
Western Division.	Bowergoth ...	Teak sleepers	12	16	0	0			
do.	Bori	do.	1,189	1,545	0	0			
do.	Mattardeo ...	do.	148	178	0	0			
do.	Dalakari	Sal sleeper.	1,024	1,346	0	0			
do.	Khandwa ...	Hardu sleepers.	1,006	1,307	0	0	3,379	4,392	Brought on stock,
Eastern Division.	Raipur ...	Sal logs.	11	117	0	0	11	117	
Central Division.	Nagpur ...	Salai.	12	208	0	0	12	208	
Sagar Division.	. .	Teak logs.	3	18	0	0	3	18	
Ahiri Division.	Allapilly ..	Teak logs.	1,487	22,922	0	0			
do.	do.	Teak sleepers	10,807	33,759	0	0			
do.	do.	Do. scantlings.	313	301	0	0			
do.	Chanda	do.	396	506	0	0			
do.	Ballarpur ...	do.	224	186	0	0			
do.	Nagpur .	Teak square logs.	10	215	0	0			
do.	do.	Teak planks.	37	46	0	0			
do.	Ballarpur ...	do.	51	96	0	0	13,325	58,031	
							16,773	63,379	

No. 24 A.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement of Timber transported from Forest Depots to Stations or intermediate Depots during the year 1872-73.

Name of River or Division.	Forest.	Description of timber.	Pieces.	Cubic feet.	Totals of each Division. Pieces.	Totals of each Division. Cubic feet.	REMARKS
Northern Division ...	Gwarighat ..	Teak logs	13	298	...	...	Transferred from Sakri.
	Do. ..	Sal sleepers	5,351	13,378	...	..	147 received from Topla Sal Forests. 5,204 „ from Sakri.
	Mandla ...	„	3,144	7,860	...	...	Transferred from Topla Sal Forests.
	Sakrighat ..	„	2,449	6,120	...	...	„ „
	Narbada depot ..	Teak logs	124	1,832	11,081	29,488	„ to Hoshangabad.
Western Division ...	Hoshangabad ..	Teak logs	130	910	...	..	Transferred from Bagra.
	Do. ...	„	124	1,832	...	..	Received from Northern Division.
	Bankherri ...	Sal sleepers	766	995	...	...	Transferred from Dalakheri.
	Khandwa ...	„	600	780	...	...	„ „
	Do. ..	Teak sleepers	3,837	4,988	5,457	9,505	„ from various depots.
Eastern Division ...	Raipur ..	Teak logs	54	1,285	...	...	Transferred from Hathibari.
	Do ...	Sal logs	16	236	.	..	„ from Kantara Nala.
	Kamthi ..	Teak logs	191	3,906	261	5,427	„ from Bagh Nadi.
Ahiri Division ...	Ballarpur ..	Teak kurries	224	186	...	...	Transferred from Allapilly.
	Wangapilly ...	Teak sleepers	380	1,187	...	...	
	Kirmirighat ..	„	828	2,586	..	...	
	Ballarpur ..	„	2,036	6,360	...	..	
	Tulamaghat ..	„	26	81	...	...	
	Hinganghat ...	„	1,822	5,691	...	...	
	Tikkapilly ...	Teak logs	208	7,579	..	...	
	Ballarpur ...	„	38	961	..	...	
	Do. ...	Teak planks	51	96	5,613	24,727	
					22,412	69,147	

No. 25.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Annual Timber Account for 1872-73.

Particulars.	Pieces.	Totals.
I.—Stock in hand at the following depots at the commencement of the year :—		
Northern Division	12,051	
Western "	14,657	
Eastern "	792	
Central "	387	
Sagar " .. .	147	
Ahiri "	7,601	
		35,635
II.—Timber received at depots from the Forests during 1872-73 as per Form No. 24.		
Northern Division ...	43	
Western "	3,379	
Eastern "	11	
Central "	12	
Sagar " . .	3	
Ahiri "	13,325	
		16,773
Total pieces...	.	52,408

Particulars	Pieces.	Totals.
I.—Timber removed by purchasers from depots.		
Northern Division	103	
Western "	6,198	
Eastern "	372	
Central " ...	66	
Sagar "	150	
Ahiri "	85	
		6,974
II.—Timber lost.		
Northern Division=by rejection ..	173	
Western " =by conversion into sleepers	403	
" " =by flood ..	244	
" " =by burnt ...	1	
Eastern " =by rejection ...	11	
Ahiri " =by conversion into sleepers, square logs and planks ..	4,230	
		5,062
III.—Stock in hand at the close of the year at the following depots :—		
Northern Division	11,690	
Western "	11,318	
Eastern "	420	
Central "	333	
Ahiri "	16,611	
		40,372
Total pieces..	. .	52,408

No. 25.—(*Continued.*)

FOREST DEPARTMENT, CENTRAL PROVINCES.

Abstract of Annual Timber Account for 1872-73.

	No. of pieces.	Cubic feet.			Rate per 100 C. ft.	Value.			Total		
						Rs.	A.	P.	Rs.	A.	P.
Opening Balance.											
Teak logs ..	20,039	2,61,795	0	0	Rs. A. P. 61 7 4	1,31,616	3	7			
Teak sleepers ..	3,477	5,204	0	0		4,568	10	4			
Sal sleepers ...	11,748	28,915	0	0		46,035	11	2			
Sal logs ...	16	236	0	0		177	0	0			
Shishum logs ...	12	231	0	0		176	4	0			
Tendu logs ...	2	15	0	0		11	8	10			
Teak stumps ...	202	650	0	0		203	2	0			
Teak bullies ...	136	258	0	0		34	0	0			
Kain logs ...	3	50	0	0		10	0	0			
									1,82,832	7	11
Received during the year.											
Teak logs ...	1,523	23,525	0	0	Rs. A. P. 34 5 3	4,943	7	4			
Salai logs ...	12	208	0	0		103	13	8			
Sal logs ...	11	117	0	0		88	6	2			
Teak sleepers ...	12,156	35,498	0	0		12,543	10	10			
Sal sleepers ...	1,034	1,374	0	0		1,386	3	1			
Hurdu sleepers ...	1,006	1,307	0	0		1,760	8	0			
Teak scantlings ..	933	993	0	0		248	4	0			
Teak planks ...	88	142	0	0		319	4	0			
Teak square logs...	10	215	0	0		352	6	3			
									21,745	15	4

			No. of pieces.	Cubic feet.			Rate per 100 C. ft.	Value.			Total.		
				Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
Sale.	Teak logs ...		1,699	22,331	0	0	Rs. A. P. 107 2 1	20,855	14	9			
	Tendu logs ...		2	15	0	0		11	8	10			
	Kain logs ...		3	71	0	0		13	8	0			
	Salai logs ...		12	208	0	0		103	13	8			
	Teak bullies ...		136	259	0	0		45	10	6			
	Teak sleepers ...		5,088	6,814	0	0		10,718	10	9			
	Teak scantlings ...		17	40	0	0		66	15	5			
	Teak square logs ...		3	32	0	0		71	5	3			
	Shishum logs ...		1	6	0	0		7	14	0			
	Teak planks ...		13	16	0	0		22	4	8			
											31,917	9	10
Lost.	By rejection.	Teak logs...	35	854	0	0	Rs. A. P. 21 4 11	779	15	11			
		Sal sleepers.	149	373	0	0		449	0	0			
	By conversion into sleepers.	Teak logs...	4,622	66,563	0	0		12,480	14	2			
	By making square logs.	Teak logs...	10	215	0	0		352	6	3			
	By making planks.	Teak logs...	1	98	0	0		88	13	0			
	Burnt ...	Teak logs...	1	5	0	0		0	14	11			
	Flood ...	Teak logs...	244	1,956	0	0		407	3	9			
	Reduced by re-measurement. ...		...	1,096	0	0		604	2	0			
											15,163	6	0

B. E.N.—4—19—526

No. 25—(*Continued.*)

	No. of pieces	Cubic feet.			Rate per 100 C ft.	Value			Total.							No of pieces.	Cubic feet.			Rate per 100 C ft.	Value.			Total.		
						Rs.	A	P.	Rs.	A.	P						Rs.	A.	P.		Rs.	A.	P.	Rs.	A.	P.
Increased in the value of stock on being transported to stations from depots near the Forests.	...	...	..	..	...	14,566	0	0	14,566	0	0	Closing balance.	Teak logs	...		14,951	1,92,283	0	0	Rs. A. P. 66 3 8	97,553	13	11			
													Sal logs	...		27	353	0	0		265	6	2			
													Teak sleepers	.		11,155	34,695	0	0		23,162	10	0			
													Sal sleepers	...		12,023	29,107	0	0		47,686	6	0			
													Hurdu sleepers	...		1,006	1,307	0	0		1,760	8	0			
													Teak stumps	...		202	650	0	0		203	2	0			
													Teak scantlings	...		916	951	0	0		801	0	4			
													Teak planks	...		75	126	0	0		290	14	10			
													Shishum logs	...		11	224	0	0		168	12	0			
													Teak square logs	...		6	85	0	0		170	14	2	1,72,063	7	5
	52,408	3,60,733	0	0		2,19,144	7	3	2,19,144	7	3					52,408	3,60,733	0	0		2,19,144	7	3	2,19,144	7	3

No. 25A.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Abstract showing the value of Live and Dead Stock for the year 1872-73.

	On hand at commencement of the year.				Value of receipts during the year.				Total.				Loss by death and deterioration in value.				Value of balance in hand at close of the year.				REMARKS.
	Nos.	Value.			Nos.	Value			Nos.	Value.			Nos.	Value.			Nos	Value.			
		Rs.	A.	P.		Rs.	A.	P.		Rs.	A.	P.		Rs.	A.	P.		Rs.	A.	P.	
Elephants	13	21,175	0	0	...	...		..	13	21,175	0	0	...	...	..	...	13	21,175	0	0	
Other live Stock , ...	182	6,349	9	0	53	1,503	4	8	235	7,852	13	8	*48	2,389	8	11	187	5,463	4	9	Almost entirely old stock that had been in work for 5 years and in the book value of which an appropriate deduction had not been made.
Machinery..	...	7,987	2	2	...	580	0	0	..	8,567	2	2	..	798	0	0	.	7,769	2	2	
Other dead Stock	...	33,932	13	8	...	6,927	0	3	.	40,859	13	11	...	5,443	15	1	.	35,415	14	10	
Total ...	...	69,444	8	10	...	9,010	4	11	...	78,454	13	9	...	8,631	8	0	...	69,823	5	9	

No. 26.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement showing the amount realized on account of different classes of Timber sold during 1872-73.

Divisions.		Number of logs sold.	Cubical contents.			Amount realized on account of timber sold.			Average amount per 100 cubic feet.		
			Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Northern Division ...	Teak logs ...	103	2,213	0	0	3,047	6	1	137	6	6
Western Division ...	Teak logs ...	1,164	9,303	0	0	1,774	1	4½	19	1	1
	Teak sleepers ...	5,034	6,544	0	0	10,705	2	9	163	9	4
Eastern Division ...	Teak logs ...	370	9,426	0	0	13,842	4	11	146	13	7
	Tendu logs ...	2	15	0	0	11	8	10	76	1	4
Central Division ...	Teak sleepers ...	54	270	0	0	13	8	0	5	0	0
	Salai logs ...	12	208	0	0	103	13	8	50	0	0
Sagar Division ...	Teak logs ...	11	89	0	0	89	6	0	100	0	0
	Teak bullies ...	136	259	0	0	45	10	6	17	1	2
	Kain logs ...	3	71	0	0	13	8	0	19	0	0
Ahiri Division ...	Teak logs ...	54	1,328	0	0	2,176	3	0	163	3	8
	Teak scantlings ...	17	44	0	0	66	15	5	152	2	0
	Planks ...	13	16	0	0	22	4	8	139	1	0
	Shishum logs ...	1	6	0	0	7	14	0	131	4	0
	Total ..	6,974	29,792	0	0	31,919	11	2½			

Remarks.	Pieces.
Timber sold in previous years remaining unremoved at the commencement of year ...	147
Timber sold during the year ...	6,974
Total ...	7,121
Timber remaining unremoved from depot by purchasers during the year ...	...
Balance removed from depot by purchasers during the year ...	7,121

Deduct amount due but not realized during the year ...	463	2	1	
Balance ...	31,456	9	1½	
Add amount realized on account of former years ...	1,617	14	1	
Amount collected by District Officers ...	2,506	2	11	
	35,580	10	1½	As per revenue Head R. I. Form No. 21.

No. 27.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement showing the amount expended on account of Timber brought on Stock in the different Forest Divisions during 1872-73.

Name of Divisions.		Number of logs.	Cubical contents.			Timber expenses.			Cost of Establishment.			Total amount expended.			Average amount paid per 100 cft.			Remarks.
			Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	
Northern Division ...	Teak logs ...	33	613	0	0	131	14	7	73	10	9	205	9	4	33	7	0	Brought on stock at Station depot.
Ditto ...	Sal sleepers ...	10																
Western Division ...	Teak sleepers ...	1,349	4,392	0	0	2,880	2	1	2,257	9	7	5,137	11	8	116	15	4	
Ditto ...	Sal sleepers ..	1,024																
Ditto ...	Hurdu do. ..	1,006																
Eastern Division ...	Sal logs ..	11	117	0	0	73	8	9	29	11	3	103	4	0	88	0	6	
Central Division ...	Salai logs ...	12	208	0	0	40	8	0	10	0	0	50	8	0	24	0	7	
Sagar Division ...	Teak logs ...	3	18	0	0	...	...	...	.	...	...	...	...	...	.	...	...	
Ahiri Division ...	Teak logs ..	1,487	58,031	0	0	18,047	8	1	5,849	11	4	23,897	3	5	41	2	10	Brought on stock at accessible depots near the Ahiri Forests.
Ditto ..	„ square logs .	10																
Ditto ...	Teak sleepers ..	10,807																
Ditto ...	Teak scantlings .	933																
Ditto ...	Teak planks ...	88																
		16,773	63,379	0	0	21,173	9	6	8,220	10	11	29,394	4	5	...	...	...	

No. 27A.

FOREST DEPARTMENT, CENTRAL PROVINCES.

Statement showing the amount expended on the transport of Timber from Forest depot to Stations during 1872-73.

Name of Divisions.		Number of logs.	Cubical contents.			Timber expenses.			Cost of Establishment.			Total amount expended.			Average amount per per 100 cft.			Remarks.
			Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	
Northern Division ..	Teak logs ..	137	..	...	...		...	..	...	...	...	...		...	...	...	..	124 logs transferred to Hoshangabad, 13 to Gwarighat.
Ditto ...	Sal sleepers ..	10,944	29,488	0	0	10,780	12	4	6,016	5	3	16,797	1	7	68	13	7	Transferred from Sakrighat to Gwarighat 5,351, from Topla to Sakrighat 2,449, from Topla to Mandla 3,144.
Western Division ...	Teak logs ...	254	...	..	..	...	...	...	...	..	.	.		..	..		...	Transferred to Hoshangabad from Northern Division, 766 transferred to Bankeri, 600 to Khandwa.
Ditto ...	Sal sleepers ...	1,366	9,505	0	0	2,992	5	0	2,345	6	5	5,337	11	5	61	14	3	
Ditto ...	Teak sleepers	3,837	..	..	...	...	...	...	..	...	..	..	...	...	...	...	..	Transferred from Bori, Bowargarh, Matardeo, Seoni, Bagra, and Hoshangabad to Khandwa Station.
Eastern Division ...	Teak logs ...	245	..	..	.	...	...	..	...	...	...	..	...	..	...	..	..	191 transferred from Baghnadi to Kamthi, 54 from Hathibari to Raipur.
Ditto ...	Sal logs ..	16	5,427	0	0	1,979	0	9	805	4	9	2,784	5	6	51	4	9	Transferred from Kantara nala depot to Raipur.
Ahiri Division ...	Teak kurries ...	224	..	...	...	...	...	...	...	...		...	...	...	..		...	
Ditto ..	Teak sleepers ...	5,092	24,727	0	0	4,245	11	3	1,376	4	8	5,621	15	11	13	13	1	In transport to Warora, Hinganghat, and Nagpur.
Ditto ...	Teak logs ..	246	..	.	...	...	...	...	...	...	...	..	...	..	...	.	...	
Ditto ...	Teak planks ...	51	.	...	...	...		...	...	..	...	...			...	...	..	
		22,412	69,147	0	0	19,997	13	4	10,543	5	1	30,541	2	5		.	...	

(REVISED)—FORM No. 28.

Annual Account of Forest Revenue for 1872-73.

RECEIPTS.	Amount.			DISBURSEMENTS.	Amount.		
	Rs.	A.	P.		Rs.	A.	P.
Amount of revenue realized in 1872-73 ...	4,81,673	7	1	Amount disbursed in 1872-73 ...	2,47,837	5	10
DEDUCT :— ...				DEDUCT :— ...			
Amount realized on account of previous periods ...	1,617	14	1	Amount disbursed on account of transactions of former periods ...	7,549	13	4
Balance ...	4,80,055	9	0	Balance ...	2,40,287	8	6
ADD :— ..				ADD :— ..			
Outstandings on account of the year, Rs. 1,672-8-10							
Minus for bad debts " 0-0-0	1,672	8	10	Amount due for transactions during the year under Review but not yet disbursed ...	..	..	..
Value of the year's transactions ..	4,81,728	1	10	Real cost of the year's transactions ...	2,40,287	8	6

	Rs.	A.	P.
Value of the year's transactions ..	4,81,728	1	10
Cost of the year's transactions ..	2,40,287	8	6
Balance ...	2,41,440	9	4
Deduct difference between value of stock at close and beginning of year ..	6,742	0	0
Net results of the year ...	2,34,698	9	4

BRITISH BURMA

PROGRESS REPORT

OF

FOREST ADMINISTRATION

FOR

1872-73.

BY

CAPTAIN W. J. SEATON,

CONSERVATOR OF FORESTS.

Printed at the P W. Secretariat Press—Rangoon.—13-10-73—400.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF BRITISH BURMA

1872-73.

BY CAPTAIN W. J. SEATON,

CONSERVATOR OF FORESTS.

REVIEW BY THE CHIEF COMMISSIONER.

No. 3092-76 F., DATED RANGOON, 31ST OCTOBER 1873.

From the Assistant Secretary to the Chief Commissioner, British Burma, Public Works Department.

To the Secretary to the Government of India, Department of Agriculture, Revenue and Commerce.

I AM directed to submit the report on the Forest Administration of British Burma for 1872-73, and to state that the cause of delay in its submission was unavoidable, as explained in the last para. of the Conservator's forwarding letter.

2. The Chief Commissioner will not, on this occasion, enter into any detailed discussion of the general question of Forest Administration. During the year, a full and careful investigation into the working of the Department in all its branches has been conducted by Mr. Baden Powell, the Officiating Inspector General of Forests, who spent the greater part of the year in the Province. The whole subject of the past and future management of the Forests has been considered in his report, which is now in the press, and it would be inconvenient to anticipate here the numerous questions upon which a decision has to be formed.

3. It will be seen from para. 8 of the report, that proposals are under consideration for the reservation of certain Cutch tracts in the Thayetmyo and Prome districts. The whole subject of regulating the use of the Cutch producing tracts has lately been considered by a Committee of the Commissioners of the three divisions of the Province and some of the Deputy Commissioners, and a scheme for giving effect to their recommendations will shortly be put into force. The statement given in para. 37 shows that the demand for Cutch is on the increase: the quantity exported from the province during the year under review being 415,610 maunds or nearly double the quantity of the previous year. The wasteful destruction of the Cutch trees for purposes of providing fuel has been put a stop to.

4. A table is given in para. 20 shewing that 134·3 square miles of Reserved forest tracts have been finally demarcated, and that proposals for a further reservation of 567·38 square miles of forest are under consideration. The fuel reserves cover an area of 10·9 square miles and will be demarcated during the season of 1873-74. Valuation surveys for further reserves were carried out in the Tharrawaddie, Prome and Salween divisions, the details of which are given in para. 21. The two first named localities not only abound in teak but Cutch and other valuable trees.

The management and improvement of the Reserved forest tracts are reported on in paras. 29-35. The experiments with *toungya* cultivation and measures for the exclusion of fires in the reserves are not satisfactory in the Prome division, but the supervision in this respect in the Tharrawaddie and Salween divisions reflects credit on the officers in charge.

The experiment of employing the Karen inhabitants of the teak localities in sowing teak in their *toungyas* has been very successful. It is the system of re-stocking our reserves, which up to the present time has resulted in the greatest promise for the future. The areas already cultivated in this manner and taken up during the present and past years aggregate 318 acres representing over, say, 127,200 young trees.

5. In accordance with the orders of Government on the report for 1871-72 (clause 5, paragraph 7,) two Rest houses have been constructed at a cost of Rs. 350 each and two more were under construction. These will afford shelter for the officers of the department during their inspections.

6. A demand has arisen during the year for *Thitka* and *Thitkadoe* of which 263 tons were exported to Europe. Measures are being taken for the reservation of this class of timber. The export during 1873-74 will probably show a considerable increase of several thousand tons. There is little doubt that the Forests are full of valuable timber of various sorts, which have hitherto been entirely neglected owing to the attention of the department having been exclusively devoted to the production of teak. Measures are now being adopted for a more careful examination and valuation of the different kinds of timber in the forests.

7. Extensive breaches of the Forest Rules were discovered during the year in the Sittang Division. These are referred to in paras. 51—69 of the report and as the particulars of these cases have been reported to Government separately, no further comments appear necessary. The greater number of the Permits for working these forests have been cancelled, and it remains to be considered how far the present system should be modified. The 3rd para. of the Conservator's forwarding letter shews how much more profitable it is to Government to manage its forests direct and the Chief Commissioner cannot concur in the view of the Conservator that there is an indirect gain by its retention, inasmuch as it enables officers to turn their attention more to improvement of the Forests. This has certainly not been the result hitherto. Very little has really been done to improve the forests, and the whole time of the officers of the department has been taken up in girdling and supervising forests leased to Permit-holders. They might just as well at the same time have made the necessary arrangements for extracting the trees they girdled. If this had been so, they would certainly know more about the forests than they do now. The whole subject of the Permit system will however be discussed in the report of Mr. Baden Powell alluded to above.

8. Girdling operations were carried on in the Rangoon, Tharrawaddie and Prome Divisions. The statement given in para. 73 shows that 8,002 trees were girdled. In the Sittang Division girdling was suspended, in order that the exact extent of injury by illicit girdling and felling may be ascertained.

9. In the Magayee teak plantation, 142 acres were cultivated during the year, and the following areas were cleared and prepared for planting in 1873-74:—

Magayee plantation	213 acres
Poonchoung do.	50 „
Total	263 „

The amount expended on teak plantations during the year is shown in appendix C. as Rs. 29,350-10-0. The total net outlay on these plantations for the past 5 years, was Rs. 135,480-9-11 and the cost per acre Rs. 60·8. The area planted with teak up to the end of the year as shewn in para. 135 covered 1780·28 acres, and cost Rs. 70 per acre. This high rate is due to the excessive price of labor and the inability of the Officers in charge to devise any means of growing a

crop with the young teak seedlings which will in any degree assist to meet the cost of cultivating the land. The Karens and others seem to be able to do this where our own Officers fail. It was stated in para. 7, of the review on the report for 1871-72, that the Conservator hoped by Cotton cultivation to reduce the expenditure on plantations, but the Chief Commissioner regrets to observe that the experiment, mentioned in paras. 113 and 117 proved a failure as only 260 viss or 949 lbs. of indifferent quality, valued at Rs. 90 was obtained after an outlay of Rs. 800.

It is clear that the cultivation of Cotton will not repay expenditure in the forests, but if proper working establishments were kept up all the year round, there is no reason why cardamoms, oil seeds, castor oil and other produce should not be grown with the young teak trees.

10. In para. 119, the experimental cultivation of the India rubber tree in the Magayee plantation is referred to. The six plants mentioned in the previous year's report are in a healthy condition, 24 cuttings have been obtained from them and successfully set out. The subject deserves much greater attention than it has yet received. Large quantities of India rubber are produced in Upper Burma though wasted for want of knowledge in its preparation. Mr. Strettell, the Deputy Conservator of Forests, Rangoon Division, is about to proceed to Bhamo to examine the India rubber producing tracts, and if possible, to arrange for a regular supply of young seedlings for plantations to be established in a suitable locality. Some young seedlings are already on their way down from Bhamo, and it is intended to procure a supply by every steamer; it seems open to doubt whether trees raised from cuttings would be as productive of gum as those raised from seed.

11. The following table shews the result of Cinchona cultivation :—

	No. of trees in 1871-72	No. of trees in 1872-73.
Thantoungyee (altitude 3700 feet)	354	522
Plumadoe (altitude 2100 feet)	240	240
Total	594	762

which shew an increase of 168 trees in the Thantoungyee plantation. In addition 1,362 cuttings have been prepared which will be planted out in the rains of 1873 as also 3,200 seedlings of the *Succirubra*, *Calasaya*, and *Condamina* varieties. For the reception of these plants 5½ acres in the Thantoungyee plantation have been prepared. This locality having a higher elevation is more favorable than Plumadoe to the growth of Cinchona.

In the last named plantation 14 ounces of seed were obtained from 118 trees. Specimens of the bark of these trees and that of the two old trees at Bogalay were sent to the Government Quinologist, Madras and to the Vienna Exhibition.

The expenditure during the year on these plantations amounted to Rs. 2,041-5-4 and the total outlay to the end of the year Rs. 7,684-10-5 No very great result is to be expected from a desultory experiment of this sort, but it seems well to go on with it for the present.

12. The out-turn of timber from forests in British territory during the year was 39,698 tons against 52,126 tons of the previous year, thus shewing a decrease of 12,428 tons. This decrease is explained by the reduction in girdled trees in forests worked by Government and the great mortality of elephants in the forests worked by Permit-holders, which necessitated their suspending operations in some of the richest forest tracts.

From beyond the British frontier 78,027 tons of timber were imported against 98,409 of the previous year. The cause of this decrease was want of sufficient rain to float the timber out of the forests into the large streams.

13. The net receipts during the year amounted to Rs. 4,91,082 against Rs. 3,93,205 of the previous year, showing an increase of Rs. 97,877. This is accounted for in para. 166 " by a decrease in timber expenses commensurate

"with a reduction in the quantity of timber extracted and by half a lakh excess "revenue realized on Foreign timber."

To the net revenue should be added Rs. 24,283, the value of outstandings in favor of the Department; this will give a total of Rs 5,15,364 as the actual surplus for the year.

14. The Conservancy and working, cost Rs. 2,03,929 against Rs. 2,45,514 of the previous year, showing a decrease of 41,585.

The cost of Establishment is nearly the same as the previous year, the expenditure under this head being Rs. 1,32,268 against Rs. 1,32,936 of 1871-72.

15. The general working of the Department is discussed in para. 184 of the report, but the Chief Commissioner will reserve his observations on this head until he submits to the Government of India Mr. Baden Powell's report.

British Burma.

FOREST DEPARTMENT.—No. 1040-7.

FROM

CAPTAIN W. J. SEATON,

CONSERVATOR OF FORESTS,

BRITISH BURMA.

To

THE SECRETARY TO THE CHIEF COMMISSIONER,

P. W. D., BRITISH BURMA.

Dated Rangoon, the 15th October 1873.

SIR,

I HAVE the honor to forward, for submission to the Chief Commissioner, the Progress Report of Forest Administration for the year 1872-73, drawn up and printed in the manner prescribed by the Government of India, in P. W. D. Circular No. 6, dated 21st April 1871.

2. To this report are appended the additional statements called for by Government of India with reference to—

(1)—The area of Reserved Forests.
(2)—Area of Unreserved Forests.
(3)—Area of Plantations.
(4)—Area of Forest tracts protected from fire.
(5)—Prosecution of breaches of Forest Rules.

3. Adverting to the foot note in page 45, it has to be recorded that if only timber expenses, direction and control establishment for timber operations be charged, the average profit to Government on the three principal classes of timber for the past five years may be thus exhibited—

		Per log.				Per ton.		
Doogies, first class	Rs.	29	9	5	Rs.	19	3	6
,, second class	,,	8	6	6	,,	5	7	0
Loozars, first class	,,	20	2	0	,,	18	10	0
,, second class	,,	6	15	2	,,	6	6	9
Yatthits	,,	3	3	3	,,	6	6	6

On timber sold by indent the profits are much higher, but a very small proportion of timber is thus sold.

On the Permit timber the average profit to Government for Doogies and Loozars shows as follows:—

	Per log and per ton.
Doogies	Rs. 6 0 0
Loozars	

It will be apparent, therefore, that Government sacrifices a large amount of profit by the Permit system, while on the other hand there is a slight gain by its retention, as it enables Divisional Officers to turn their attention more to the important work of "improvement" of the Forests, as fewer Officers are required in Divisions worked exclusively under this system.

4. It has to be remembered also that in the above calculations no allowance has been made for the interest on the capital laid out by Government; if it be taken at the ordinary rate of 12 per cent. per annum for 18 months, the profit will be lessened by about Rs. 4-10-10 per ton. Permit-holders on the other hand demand as high as 2½ per cent. per mensem from their employès, and as a rule, money cannot be obtained at a less rate of interest for timber work ; this, as a matter of course, tells against the margin for profit very considerably.

5. The report is dated 1st September, but owing to press of work consequent on the printing of the Forest Rules and other matter for the Inspector General, the printing of it could not be undertaken except in sections, as type happened to be available in the Secretariat Press.

I have the honor to be,

SIR,

Your most obedient Servant,

W. J. SEATON, *Captain*

Conservator of Forests,

British Burma.

CONSERVATOR'S REPORT.

Annual Report, dated 1st September 1873, on the management and conservancy of the British Burma Forests, for the Financial Year 1872-73, by CAPTAIN W. J. SEATON, *Conservator.*

SECTION I.

INTRODUCTION.

SPECIAL.

THE first period of five years of the revised working plan of 1868 having expired with the year 1872-73, this report will comprise a brief *résumé* of the operations undertaken during that period in addition to a fully detailed record of those of the past year.

2. The Progress Report for 1868-69, contained an estimate of the separate areas representing cultivated, cultivable and waste land throughout the Province.

3. The following figures for the past year shew a considerable increase in land under cultivation as compared with those of 1868-69 :—

	Acres.
Area cultivated	2,208,640
Culturable land	23,170,560
Non-culturable waste	4,214,862
Forest land	4,480,000
Viz. (1.) Teak producing forest (1,534,080)	
(2.) Forest void of teak (2,945,920)	
Lowlying Forest land and land occupied by 12,845 towns and villages	26,007,498

4. The population according to the latest census returns is as follows in each of the three main civil divisions into which the Province is divided, and in the boundaries of which some alterations have been made since 1868-69, whereby their relative areas have been affected :—

	Square miles	Population.
Arakan	18,530	461,136
Pegu	28,404	1,524,422
Tenasserim	46,730	576,765

These figures give the following estimate of population to the square mile—

Arakan	24·9	souls to the square miles.
Pegu	53·6	ditto.
Tenasserim	12·3	ditto.

The population in some of the principal towns also exhibits an increase—

Arakan Division.

		Population.
1.	Akyab	15,281
2.	Sandoway	1,508
3.	Kyouk Phyoo	1,667

Pegu Division.

1.	Rangoon...	100,000
2.	Bassein	19,577
3.	Henzada.	15,285
4.	Myanoung	5,516
5.	Prome	24,682
6.	Thayetmyo	8,379
7.	Pegu	4,161
8.	Shwèdoung	12,411

Tenasserim Division.

1.	Moulmein	53,650
2.	Shwé-gyeen	6,957
3.	Toungoo	9,406
4.	Tavoy	14,467
5.	Mergui	9,877

FOREST LEGISLATION.

5. In accordance with the orders of the Government of India, the revised draft forest rules was resubmitted with corrections made in order to bring it within the provisions of Act VII of 1865, but it was pointed out that thus altered, the revised rules would be little or no improvement upon the existing rules.

6. Consequent upon a memorial of the timber merchants of Moulmein, instructions were received for the introduction of an advalorem assessment of duty on Foreign teak timber imported by the Salween river instead of the fixed rates which have been in force since August 1848, but a reference on the subject of this order resulted in a Bill being framed at the close of the official year, viz., Bill No. 5 of 1873, to amend the law relative to timber floated down the rivers of British Burma.

FIRST PART.—SPECIAL.

I.—STATE FORESTS AND LEASED FORESTS.

7. *Proposals for demarcation.—Salween Division.*—During the early part of the year, proposals were submitted by the Deputy Conservator, Salween Division, for the demarcation of the following teak producing tracts as Ordinary Reserves :—

East Doomdamee ... ... West ditto	44 Square miles.
Beeling	10 ditto.
Yoonzaleen south of Sinzway choung	4½ ditto.

8. *Prome Division.*—As the result of the examination during the previous year of the Cutch producing tracts in the Thayetmyo and Prome Districts, the Assistant Conservator was enabled to submit proposals with the necessary topographical maps and estimates of growing material for the reservation of the following Cutch tracts, aggregating 84 3 square miles in extent:—

Thayetmyo District.

		Areas.
No. 52	Satsoowa	16·6
No. 53	Bangoong	10
No. 54	Tendaw	10·5
No. 55 and 56	South Boolay	12
	Total square miles ...	49·1

Prome District.

No. 57	Tado-kya...	24
No. 58	Tulaben	5·5
No. 59	Tay choung	5·8
	Total square miles ...	35·3

9. In the Administration Report for 1871-72 owing to some clerical and other errors, the total area of the various blocks proposed for demarcation as State Forests was shewn to be 384·71 square miles.

The correct areas are as follow—

Boolay and Pudday	123·35	square miles.
North Naweng	79·75	ditto.
Middle Naweng	67·75	ditto.
South Naweng	79·82	ditto.
Mahathaman	16·61	ditto.
Total	367·28	

10. *Tharawaddie Division.*—Proposals have been resubmitted for the demarcation of the following tracts selected as fuel reserves near the Prome road, the boundaries having been rectified in accordance with the orders of the Chief Commissioner mentioned in para 5 of the Report for 1871-72.—

	Acres.
Hsatpoke	4,653
Tseet queng	2,032
Choung-na-goon	344

These tracts were inspected by the Deputy Commissioner, accompanied by Mr. Stratford, Sub-Assistant Conservator, and their reservation having been approved of, their final demarcation will take place early next season.

11. Proposals were also forwarded for a slight alteration in the western boundary of the Shaboung Reserve.

The locality was visited by the Assistant Commissioner of Poungday, together with the Deputy Conservator, Captain Douglas, and the alteration approved of by the former.

12. *Rangoon Division.*—Consequent upon the illness of Mr. Rind, Assistant Conservator, the rectification of the boundaries of the proposed fuel reserves on the Prome road, could not be taken in hand before the close of the official year as expected.

SELECTION AND PRELIMINARY DEMARCATION OF RESERVES.

13 *Prome Division.*—The past season was devoted to a careful examination of the following Cutch-producing Forests in the Thayetmyo District, west of the Irrawaddie.

SOUTH MUDDAY—CHEEPA KIOR—EAST PANEE CHOUNG.—

The examination was conducted in accordance with the orders of the Chief Commissioner, contained in No. 3157, dated 5th December 1872, directing that the selection of Cutch Reserves should be made with due regard to accessibility and non-interference of any kind with the people and existing cultivation.

The results shew that with the exception of a few tracts of limited areas on indifferent soil, all Cutch Tracts of any value have been greatly injured and in some places totally destroyed in the west Thayetmyo District, consequent on the increase of both population and cultivation near the main rivers and in localities adapted to the manufacture of Cutch.

Everywhere these tracts bore traces of overfelling on the part of the manufacturers, and of the disastrous effects of " Toungya " or Jhoom cultivation which is also largely practised by these people.

Trees of 4 feet 6 inches in girth, are now rarely to be met with, and stumps everywhere preponderate largely over the number of standing trees, but such are the vitality, rapid growth, and reproductive powers of the Cutch tree, that the closing of some of the best tracts, for a period of 15 to 30 years will in all probability, suffice for insuring a supply of mature Cutch timber, equal to the future wants of the Cutch trade in this district. These tracts will, of course, have to be protected from toungya cultivation, fires, and all interference, and measures taken to re-stock blanks by artificial planting.

That the west Thayetmyo tracts, represented at one time, the richest Cutch Forest in the Province is evidenced by the results of Mr. Elsner's surveys shewing

Cutch Trees on 100 *acres*

3 cubits girth	3
2 cubits ,,	132
Small Trees	475
Stumps	1246

14. *Tharawaddie Division.*—Owing to the absence of Mr. Daly, Assistant Conservator on sick leave, Mr. Stratford was the only Officer available for this work during the past season.

The tracts in the Shwélai District examined during the previous year were re-examined by the Divisional Officer, boundaries selected and finally surveyed by Mr. Stratford. The result is that proposals are about to be submitted for the reservation of eight additional tracts abounding in teak and Cutch, in the Shwé-lai, Prome Civil District, and covering an area of 21 square miles, and of one tract 7·8 square miles in extent, in the Toungnyo, Henzadah Civil District.

The importance of the work is readily understood from the fact that the reservation will be secured of 20 square miles of Cutch producing Forest, as well as of the entire block of low hills shut in between, the Bwet, Shaboung, Tapan, and Padingben Reserved Tracts, and justly esteemed to be one of the finest teak localities in the Province.

15. *Salween Division.*—The work of selection and preliminary demarcation of reserves was entirely suspended in this Division owing to the temporary with-drawal on special duty, of Assistant Conservator Moung Poh O, to the Sittang Division.

16. *Demarcation of boundaries.*—The final demarcation of the following tract was undertaken during the year, in accordance with Rule XIV of the Forest Rules.

Pyoonchoung } Area, 3,519 acres sanctioned in Local Government.
Thoukyeaghat } No. 616-36 F., dated 20th November 1871.

17. *Method of demarcation.*—The demarcation was effected in the manner noted in para 6 of Administration Report for 1870-71. Owing to the accessibility of the tract and its proximity to Toungoo, masonry pillars are also to be erected at the main salient points in the boundary lines.

18. *Cost of demarcation.*—The cost of demarcation has amounted up to the present, to only Rs. 50-12 or Rs. 1-6-9 per mile.

19. *Partial clearing of boundaries and renewal of boundary marks.*—In the Tharawaddie Division, it was found necessary to re-clear some of the boundaries of the reserves, and renew some of the boundary boards. This was done at a cost of Rs. 194-8 and Rs. 15-5 respectively.

The experiment has been tried of taking elephants along the boundaries during the rainy season with a view to a well-beaten and easily recognized path being established. If occasionally repeated, this object will, no doubt, be attained.

20. The following is a summary of the operations of the past 5 years connected with the demarcation of Forests and their results—

	AREAS SURVEYED, MAPPED, AND PROPOSALS UNDER CONSIDERATION.	AREAS SANCTIONED AS STATE FORESTS AND FINALLY DEMARCATED.
Divisions.	*Square miles.*	*Square miles.*
Prome. For teak and other valuable trees	367·28	29·17
for Cutch solely	84·3	0
Tharawaddie. Teak and other varieties. ...	28·8	79·46
for fuel purposes	10·9	0
Salween. Teak and other varieties	58·25	20·18
Sittang. ditto. ...	... ...	5·49
Rangoon. ditto. ...	4·76	0
for fuel purposes ...	13·09	0
Total ...	567·38	134·30

21. Areas over which valuation surveys have been held during the above period with reference to the resources, in growing material, of tracts proposed for reservation—

		Acres.
Tharawaddie.	In localities abounding chiefly in teak, ...	3757
	in Cutch, and other valuable trees ...	216
Prome.	Abounding chiefly in teak	5755·5
	In Cutch, Padouk, and other woods	8967·4
Salween.	Abounding chiefly in teak	500

2.—Requirements of the surrounding Population, prescriptive rights.

22. In para 22 of Administration Report for 1871-72, it was mentioned that instructions had been received for framing subsidiary rules and fixing a tariff for the sale of Forest produce in the Reserved tracts.

Inquiries have been instituted with the above object in view, but with no other result than the report from Divisional Officers, that it appears premature to fix rates when the people have large areas of unreserved Forest open to them to supply their wants, and are not under the necessity of buying Forest produce.

3.—Protection.

23. During the dry season no European Officers being available for the inspection of boundaries of Forest Reserves, this duty devolved wholly on the Forest Rangers in the several divisions.

24. *Tharawaddie.*—Portions of the boundaries of 13 of the Tharawaddie Reserved Tracts were inspected by the Divisional Officer, Captain Douglas, subsequent to the Forest Ranger's inspection, and everything found to be satisfactory.

25. Inquiries made by Mr. Daly regarding the destruction of boundary marks, noted in para 23 of Administration Report for 1871-72, resulted in the discovery of one offender in the case of the Kangyee Reserve.

It also transpired that the Goungwai or Forester had concealed the offence.

Both parties were prosecuted and sentenced respectively to 6 months and 3½ months rigorous imprisonment.

No trespasses by Toungya cultivators have been reported.

26. *Prome Division.*—The unauthorized removal of six Padouk trees (Pterocarpus dalbergioides) was discovered in the Gwaycho Reserve and eight out of eleven persons concerned were convicted in the District Court and sentenced severally to a fine of Rs. 30.

27. *Rest-houses contiguous to Reserved Forests.*—During the working season rest-houses were erected in the Tharawaddie Division at Queaymakeing, near the Mokka Beeling Reserve, and at Saigangalay, near the Tapan Reserve, and two others are in course of construction at Jeobenaing Shaboung Reserve, and Quingyee near the Kyoukee Toung Reserve.

The amount expended on each including an out-house is Rs. 350, which is moderate, when the distance of the sites from the lower plains is considered, the building being well raised and the walls and flooring made of teak.

28. *Advantages accrueing from Rest-houses.*—The object in view is eventually to have a chain of rest-houses at 15 to 20 miles apart throughout the entire length of the division, whereby it will be possible for the European Officers to inspect the Reserves in the rains as well as in the dry season, tents being useless except in the latter season.

4.—Management and Improvement.

29. *Prome Division—Toungya Plantations.*—An inspection by the Conservator of the "Toungya" teak plantations in the Gwaycho Reserve fully confirmed the opinion noted in para 27 of previous years Report as to the inutility of attempting the improvement of this Forest with the aid of Chin squatters.

The results of the experiment were anything but satisfactory, and do not reflect credit upon the Assistant Conservator in charge, Mr. Elsner, whose occasional inspections had been made in such a manner as to leave him in ignorance of the fact that the cultivators had introduced the practice of raising teak over a very small portion of their huge clearings and of allowing even that portion to be over-run by their cattle.

30. As an experiment, the Conservator has sanctioned the ploughing of, and scattering Cutch and teak seed over several of the abandoned Toungya clearings in the northern part of this Reserve; the result will be carefully watched.

31. *Exclusion of fires.*—Efforts were made, but without success, to exclude fires this season from the Gwaycho Reserve 10·5 square miles in extent and from 9·8 square miles of the Choungzouk Reserves.

In one instance only the fire was traced to certain employés of the Permit-holders who have a practice of protecting the timber in dragging camps by setting fire to the jungle in the immediate vicinity and thereby clearing the ground of all inflammable matter for a certain distance around the camp.

Mr. Elsner reports "the boundaries as well as cross lines (intersecting the "Reserves) were cleared of inflammable matter to the width of 15 feet, and a "party of watchmen appointed to each tract for patrol purposes and keeping "the fire traces clear of inflammable matter after a thorough clearing had taken "place with aid of extra coolies." The cause of failure may be attributed to insufficient establishment for watching and patrol purposes, there having been only 2 goungs and 9 watchers to 40 miles length of fire traces external and internal.

Experience also shows that the breadth of the fire traces should have been 30 instead of 15 feet. The Divisional Officer is of opinion that success can only be looked for in the exclusion of fire from Reserves of limited area and that in the case of large Reserves it will be necessary.

1. To close all thoroughfares through the tracts while danger of fire is apprehended.

2. To have a legislative enactment against the practice of "Toungya" cultivators of setting fire to the surrounding jungle when the burning of their "Toungyas" take place.

3. To reward the Goungwais or district foresters who succeed in excluding fire from the Reserves in their charge.

THARAWADDIE AND SALWEEN DIVISIONS.

32. *Toungya Plantations.*—Several of the areas planted with teak by the Karen Toungya cultivators in the Mokka Beeling Reserve and referred to in Administration Reports for 1868-69 to 1870-71, were inspected by the Conservator They were found to have been effectually protected from fires by the Karens, and their general condition as well as the size, growth, and number of saplings in them may be said to prove conclusively that these thinly stocked plantations can be counted upon to have a very fair proportion of vigorous teak saplings on the acre at the end of 4 or 5 years, if fires are excluded and a light clearing made here and there only when actually necessary to free the crowns of the teak plants from the undergrowth around them.

It was further apparent that with a light clearing, the growth of the teak seedlings is not impaired for want of close planting, other plants, grass, bamboo, &c., around them, tending to draw them up and support them.

In a well-stocked plantation of 1,200 to 2,000 plants per acre, both weeding to a considerable extent for first three years and thinning at regular intervals have to take place, involving heavy expenditure for which there is no return for many years.

In the case of the Karen Toungya plantations, containing from 300 to 500 plants per acre, the cost of planting one acre to begin with, is only one-third of that of an acre under the regular system.

Again, a very light clearing is necessary, only in places, the cost of which is trifling, and finally, no regular thinnings are needed, but as the plantation

grows up, a solitary tree here and there may have to be felled when found to endanger or impede the growth of the young teak trees.

Another advantage of this system is that it provides for the maintenance of other species either valuable for timber, shade,or the enrichment of the soil.

It is evident that in the hills, the true habitat of the teak where labour is both difficult to obtain as well as control, this system of employing the Karen Toungya cultivators is peculiarly well adapted to the work of consolidating the teak Forests.

If by this means the blank and poorer portions of a Reserve are restocked with teak seedlings, and at the same time such works of improvement are carried out, as cutting out useless trees of other kinds, bamboo, &c., which impede or interfere with the growth of teak in the richer parts, scattering seed, excluding fire, &c., &c, a few years will suffice to convert the Reserve into an exceedingly rich teak tract.

If moreover, these operations are undertaken simultaneously in several Special Reserves, the formation of more or less compact teak Forests must be effected far more expeditiously than by any system of regular plantations.

33. *Work of past five years.*—The results, therefore, during the last 5 years of employing these Karen inhabitants of the teak localities cannot be too highly estimated, especially when it is remembered how every attempt hitherto made to obtain their services has failed by reason of their mistrust of strangers, superstition, dread of innovations of every kind, and that fondness of seclusion which is common to all nomadic races.

In para. 102 of Administration Report for 1869-70, this change in the disposition of these hill people was attributed to the strict enforcement of Forest Rule VI in the upper teak localities and formation of State Forests. This has been fully confirmed by more recent experience, and the measures adopted this past season for extending this system of cultivation to other suitable localities selected as Reserves in the Tharawaddie Division.

As soon as the intentions of Government are explained with reference to formation of Special Reserves and the abandonment of certain areas to the Karens for Toungya grounds, it is found that they manifest an interest in the whole question of Forest improvement and are quite ready to admit that the sooner the Special Reserves are converted into compact teak Forests, the sooner will Government be in a position to exclude large areas from the operation of the Forest Rules.

The result of the Conservator's interviews with the headmen in several places was, that arrangements were entered into this season by the Karens of no less than 8 villages to undertake the cultivation of teak in Toungya clearings.

Mokka Beeling Special Reserves.

Shwé Kior Tay	... .	about 27 acres.
Tsa-oh do.	... ...	„ 36 „
Panlay do.	... ...	„ 60 „
Oung Bwai	... ...	„ 3 „
		126 „

Minlha proposed Reserve.

Pahaye Tay	... ...	15
Shwè Zing Tay	... ...	24
Gna Aye do.	... ...	15
Ko Panyea do.	... ...	21
		75

Also by Yabines in the following Reserves—

" Boben choung wa	... ...	6 acres.
Mokka Beeling	... ...	12 „
		18 „
Total area under the Toungya plantation system		219 „

In work of such importance the senior Forest Ranger, a man of great experience was deputed to make over the sites in continuous belts to the

Karens, and prepare sketch maps of the localities, and from his report it appears that the work throughout has been satisfactorily commenced.

34. *Areas under Karen "toungya system."*—The following are the areas already planted by the Karens in the Tharawaddie and Salween divisions—

	Approximate acres.
Mokka Beeling Reserve	53 acres.
Boben Choungwa	11 "
Salween Sinzway	35 "
	99

which added to the areas now taken up, give a total of 318 acres subjected to this mode of treatment.

THARAWADDIE AND SALWEEN DIVISIONS.

35. *Exclusion of fire.*—Fire was successfully excluded during the past season from 16·5 square miles of the Mokka Beeling Reserve, and Choungwa Reserve 1 1 square miles in extent, in the Tharawaddie Division, and the Sinzway Reserve 14 square miles in area in the Salween Division.

Attempts were made but without success to protect the Kangyee Reserve of 5·9 square miles in the Tharawaddie and the Moochoung and Wa-moochoung Reserves, aggregating 6·18 square miles in area, but from the experience gained in this undertaking, it would appear that the exclusion of fire from tracts near cultivation and villages is attended with great difficulties: it is to be hoped however, that eventually an understanding may be arrived at by which the co-operation of the nearest villages can be counted upon towards extinguishing and giving notice of the approach of fires.

SECTION II.

UNRESERVED OR DISTRICT FORESTS.

(1) AREA AND BOUNDARIES.

36. No alterations have to be recorded in the constitution or treatment of these Forests, which, up to the present, have included all Forests not demarcated as State Forests.

(2) REQUIREMENTS OF THE SURROUNDING POPULATION.

37. The question of forming district Forests to meet the wants of the people in the more populous parts of the Province has been again under consideration.

The condition of the Cutch Forests and urgent need for introduction of conservancy measures have continued to occupy the attention of the Local Government, and it is expected that a prohibition will be shortly notified against the felling of all Cutch trees, except under Permits issued by the District Officers in localities not selected for reservation.

"Exportation of Cutch."—It is of interest to note that the exportation of Cutch from the Province during the last 3 years has been as follows:—

1870-71	...	220,795 maunds.
1871-72	...	224,288¾ "
1872-73	...	415,610 "

38. *"Thitka," "Thitkadoe" "cedrela toona"*—During the year, the increased demand for timber of the Thitka and Thitkadoe "cedrela toona" varieties for export to Europe was brought to the notice of the Local Government, and in accordance with a recommendation for their reservation a Draft Notification prohibiting the felling, cutting, &c., of these species has been drawn up and submitted under the provisions of Forest Rule XII.

Information has also been called for regarding the tracts abounding in these woods, with a view to their demarcation as State Forests.

The first of these species Thitka, was included in the proposals submitted to the Local Government in 1870-71. The data then collected shewed that some 800 logs of an average length of 18 feet of this Thitka wood were brought down annually to Rangoon for local consumption from the Pegu, Hlyne, and Pounglin Forests, and that the yearly extraction of this wood had increased to 800 logs in the Bassein District, and from 1,500 to 3,000 logs in the Sittang Forests. The price then realized by this timber was about 3 annas per cubic foot in the rough, and Rs. 40 to 45 for 100 planks 15′ × 8″ × 1″.

The demand on the other hand for Thitkadoe has been somewhat limited, the annual extraction not exceeding a few hundred logs.

For some years unsuccessful attempts have been made to introduce this wood into the Continental markets, and it would appear that the present demand is the result solely of the exhaustion of the Cuba Forests and the anarchy prevailing there.

Arrangements were made in November 1872, for the extraction and delivery of 1,000 tons of Thitkadoe timber of a minimum girth of 5 feet at 8 annas per cubic foot, to Mr. J. D. Capelle of Rangoon, who has long interested himself in the question of exporting this wood, but owing to the early closing of the monsoon, it was only possible to deliver 263 tons at Moulmein chiefly from the Attaran Forests.

39. The Customs Returns for the past year shew an exportation of these woods to the following extent from the ports of Rangoon and Moulmein.

Rangoon.	Moulmein.
Thitka, Thitkadoe, 700 tons.	Thitkadoe 68 tons.

40. *Exportation of other woods.*—Of the other woods the quantities exported during the past five years have been :—

	Years.	Padouk Tons.	Pyimma Tons	Total Tons	Market value.	Remarks.
From Moulmein.	1868-69 . . .	49	...	49	Rs. 707	Chiefly to the Madras Coast.
	1869-70 . . .	...	45	45	1,271	
	1870-71 . . .	224	560	784	26,485	
	1871-72 . . .	½	50½	51	2,727	
	1872-73 . . .	...	...	607*	24,451	* Padouk and Pyimma.
	Total in last five years . . .	273½	655½	1,536	55,644	

(3.)—PROTECTION.

41. The system of locating the junior Officers of the Tharawaddie Division at certain places on the Prome and Rangoon road for the charge of the north and south Sub-Divisions has continued to work well.

42. The Head Quarter station of the Division was removed in 1863-64 from Myodwin, a place contiguous to the Forests, to Myanoung on the Irrawaddie, but with the completion of the Prome road it will be advisable to shift it to a central place on the road, the advantages arising out of a rapid means of communication along the whole length of the Division, compensating for the trouble and risk involved in obtaining treasure from the Myanoung or Henzadah Treasuries.

43. *Rangoon Division.*—In the Kawleyah Forest several hundred trees of the girdling of 1871, were found to have been felled by the employés of the Permit-holders, the Burma Company "Limited," when but half the period prescribed for seasoning had passed. This being a direct contravention of the Permit Agreement, a considerable quantity of timber was detained on

arrival at the Puzoondoung station and only released on the understanding that it represented *Government girdled* trees felled prematurely without the consent and knowledge of the Company. Forty logs identified as having been cut from living trees were also released at the Revenue station on the ground that they may have been obtained from trees imperfectly girdled by Government.

44. One case of appropriation of drift teak timber in the Pegu river involving Breach of Forest Rule XIX was tried by the Conservator and disposed of by the infliction of a fine of Rs. 10. The disclosures in this case led to the conviction of Moung Tay, the Pegu Forester, in the Court of the Assistant Commissioner, Rangoon, on a charge of bribery (Section 116 Indian Penal Code.)

45. *Tharawaddie Division.*—To check the increase of theft of timber in the Irrawaddie river alluded to in the previous year's Administration Report, it was found necessary to depute Mr. Daly for a considerable period during the rainy season to Henzadah and the upper part of the Bassein Creek or Gnawoon choung.

Six cases of theft, conversion, and sale of Government drift timber in which 8 parties were concerned were discovered, and successfully prosecuted in the District Courts.

In two the defendants were tried for Breach of Forest Rule XIX, and sentenced to fines of Rs. 40 and 50 respectively. In the remainder one defendant was discharged, four were dealt with under Sections 403, 406 and 426 Indian Penal Code, fines varying from Rs 2 to Rs. 50 being inflicted; and the eighth, one Tha Aye, a drift timber salvor appointed by Government, was sentenced to one year's rigorous imprisonment.

46. Two cases of Breach of Forest Rule IX were also prosecuted in the District Courts, and three out of five defendants sentenced to small fines.

One case of Breach of Forest Rule VI, viz., the killing of 30 first class trees in the Momonyo and Palawa tracts of the Toungnyo District, was discovered by Mr. Hough early in the year. The actual offenders who are believed to be villagers in the vicinity could not be discovered, but the Contractor working here, in whose interest the offence was committed, will be dismissed.

47. One case relating to the disposal of an elephant purchased from and reloaned to a contractor was investigated in the District Court, but dismissed on the ruling that the loan bond was virtually a sale bond, and that the property having passed to the buyer no criminal action would lie.

48. *Prome Division.*—The number of offences discovered during the year was 8, and number of persons concerned in them as far as they could be traced was 23.

Of these four were Breaches of Forest Rules VI and IX: in one, the defendants, 10 in number, were discharged for want of direct evidence of having felled teak in their "yas:" two related to the destruction of over 1,170 teak trees in Toungya clearings in the Opho (western) Forests; but as the Forest Rules do not apply to the western Forests, and an attempt to prosecute under the Indian Penal Code had also failed in the Thayetmyo District Court last year, no steps were taken in these cases. It has to be mentioned, moreover, that only 7 of the parties concerned could be discovered.

The fourth case relating to the felling of 3 teak trees in the Mahathaman Forest was disposed of in the District Court by the infliction of a fine of Rs. 30 under the Indian Penal Code.

49. A Breach of Permit Agreement on the part of the employés of the Mendoon Forest Permit-holders, viz., the removal of trees below the standard girth constitutes one of the offences discovered and is still pending.

50. The remaining 3 cases had reference to appropriation of drift timber and defrauding Government of Revenue: in the former, the offence being within the limits of the western Forests, no action could be taken, and in the latter, the individual concerned being in Burmese territory could not be apprehended.

In the inquiries relating to these latter cases, Mr. Hough was employed some time in the western forests.

51. *Sittang Division. Gwaythai, Bimbyai.*—In the Administration Report for 1871-72, para. 46, it was mentioned that in addition to extensive Breaches of Forest Rules discovered in the Myolha, Hpyoo, and Thoukyeaghat Forests, and minor Breaches in the Khaboung and Koonoung Forests on the occasion of, and immediately after Mr. Graham's removal from Divisional charge, there was reason to apprehend the existence of a similar state of things in the Gwaythai and Bimbyai Forests held by the Burma Company "Limited."

An examination of these latter tracts revealed the fact that an extensive illicit girdling had taken place, and that in order to baffle detection, the illicitly girdled trees had been also branded with the Government mark (of the year 1870) fraudulently obtained, or with its counterfeit. Later in the rains unlawfully girdled trees were discovered in the Allaibai Sub-Division of the Kannee Forest, and in a portion of the Tsamoh Forest, both worked by the same Firm, but owing to the unreliable character of most of the lower grades of the Forest Subordinates, and the influence of the Permit-holders employès, as well as their strenuous efforts to prevent disclosures, it was impossible to ascertain at the time the extent of the irregularities on their part.

The difficulties encountered in this matter by the Divisional Officer were also increased by the attitude assumed by the Burma Company "Limited" in the Myolha case, and the general impression among their employès that the Company was quite prepared to contest every point in the Civil Courts against Government.

52. *Detention of unseasoned timber.* The Companys' employès continued to send down considerable quantities of unseasoned timber to the Toungoo Revenue station, and this resulted eventually in the detention of several hundred logs at the Puzoondoung station, Rangoon, whither the timber was allowed to proceed at the request of the Company, for the Conservator's inspection. This timber was hauled up on shore and after carefully scrutiny, only such logs were finally detained as bore unmistakeable traces of having been obtained from trees of less than two year's seasoning, such as total absence of worm marks on the sapwood, or worm marks few and faint, or inner skin (or liber) of bark adhering, or dah marks indicating forcible removal of bark and undecayed bark in crevices.

Several hundred logs of Padah Forest timber were also detained, but released on the understanding that they represented Government girdled trees of 1871, the premature felling of which, it was urged, had commenced without the knowledge of the Company.

53. *Forfeiture of Myolha Permit.*—Against the Myolha Proceeding, noted in para. 47 of the previous year's Administration Report and the forfeiture of the Permit, a strong protest was filed by the Burma Company "Limited" on the 26th June 1872.

An action against Government for the value of about 2,000 logs lying felled in the Myolha Forest was also threatened on the assumption that the illicit girdling took place during the occupancy of the former Permit-holder, but ultimately an arrangement was entered into under which the Company received permission on the 14th August 1872, to commence the removal of the felled timber under guarantee on their part to make good its net market value, pending a final settlement of the points in dispute, and a reference to the Government of India.

The season being somewhat advanced, the Company succeeded in extracting only 998 logs.

54. *Forfeiture of Thoukyeaghat Permit.*—Encouraged by the action of the Burma Company "Limited" in the Myolha case, Teen Cowrie Maistry, the Permit-holder, ejected from the Thoukyeaghat Forest, applied for permission to remove the felled and neaped timber estimated at 1,700 logs in the

Forest and the main river, and a similar application was made with regard to 1,445 logs lying in the Hpyoo Forest or neaped in the Sittang river.

At first permission was granted for the removal of the timber in the main river with the exception of such as was unmistakeably green, but ultimately on the 8th November 1872, this concession was extended to the timber lying in the Forest but under a guarantee similar to that entered into by the Burma Company "Limited" to make good the net value of timber on a final settlement of the case taking place, and with the additional clause that logs unmistakeably green were to be detained.

The quantity of timber brought down under the first concession and the subsequent guarantee amounted to 1,668 logs of which 299 were detained.

55.—*Koonoung and Khaboung.* Proceedings held by Mr. Adamson, Assistant Conservator, with regard to Breaches of Forest Rules discovered in the Koonoung and Khaboung Forests and referred to in para. 46 of Administration Report for 1871-72, resulted in the cancellation of the Permits by order of the Chief Commissioner, on the 10th July 1872 and 17th January 1873. Towards the latter part of the rains, these Forests were examined by Mr. Nepean, Assistant Conservator, temporarily transferred from Rangoon Division, and the extent of damage ascertained to be in the Khaboung Forest, 56 teak trees first class and 11 teak trees second class (below 6 feet in girth) unlawfully felled, and in the Koonoung Forest the unlawful felling of 123 teak trees first class and 95 teak trees second and third classes.

There was also evidence of the latter irregularities, chiefly the felling of half dead trees, having been initiated in the first instance by the employès of the Burma Company "Limited," who held this Forest to within 4 months of the discovery of these Breaches of Forest Rules.

The examination of these tracts was conducted in a very creditable manner, and but for injudiciously meddling with a question of boundaries between the Tsamoh and Khaboung Permit-holders, Mr. Nepean's deputation to this Division would have been deemed satisfactory throughout.

56. *Examination of Forests held by Burma Company "Limited."* With a view to ascertaining the extent of the irregularities in other Forests, the systematic examination of the following tracts already referred to as held under Permits by the Burma Company "Limited" was taken in hand at the commencement of the dry weather. To assist in this undertaking, Assistant Conservator Moung Poh O, an Officer of lengthened Forest experience, was temporarily transferred from the Salween to the Sittang Division.

57. *Kannee Forest.*—Extensive illicit girdling and felling of illicitly girdled trees and of green or half-dead trees, were found to have been carried on simultaneously within the previous year and past rainy season, throughout the whole of the most western or outlying tracts, and as far east, as the Lower Allaibai and Bamboong Forests.

Assistant Conservator Moung Poh O counted in his survey 179 girdled trees of 10 to 12 months seasoning, 247 stumps of the same and of trees felled green, and 165 logs unlawfully felled and artificially scorched. The existence of these irregularities was fully confirmed by the subsequent inspection made by the Conservator in company with the Officiating Inspector General, numerous green logs being found placed to season in the sun, also numerous green stumps and unlawfully girdled trees.

The Upper Allaibai and Laidoogway were examined later in the season by the Conservator, but no traces of irregularities discovered in them, although abounding in first class trees of excellent proportions, 840 first class trees on the 100 acres being the results of a survey on the Laik Myoung, a feeder of the Allaibai.

These irregularities resulted in the cancellation of the Kannee Permit, by order of the Chief Commissioner on the 8th March 1873, and the conviction of Moung Kaing the leading employè of the Burma Company "Limited," in the

Court of the Magistrate of Toungoo on a charge of mischief, Section 427 Indian Penal Code (Proceeding of the 7th April 1873.)

The case for Government was conducted by Mr. Baden Powell, Officiating Inspector General of Forests, appointed Government prosecutor for all cases at Toungoo while the Proceedings were watched on behalf of the Burma Company "Limited," by Mr. Elmes, Barrister-at-law, and Member of the Rangoon Bar.

A confiscation order was also obtained in the same Court (Proceeding No. 12 of 2nd Quarter 1873,) for the restoration to Government of 400 logs of unlawfully felled timber lying in the Forests and main river.

The quantity of timber thus felled was known to be much greater, but owing to the work of dragging not being completed, and the unwillingness of the people concerned to afford the necessary information, it was not possible to discover and seize more than the abovementioned quantity before the cancellation of the Permit.

From the disclosures in these Proceedings, it would appear that over 1,000 trees had been girdled without authority, but apparently with the connivance of Mr. Graham, the late Divisional Officer

58. *Gwaythai and Bimbyai Forests.*—The examination of these Forests fully confirmed the report already recorded as to an extensive illicit girdling having recently taken place, and as to the application of a fraudulent Government mark to the illicitly girdled trees by the employès of the Permit-holders. 525 logs of of green and imperfectly seasoned timber in the Bimbyai Stream and in the Forest on its banks were forthwith seized by Mr. Adamson, the Divisional Officer who accompanied the Inspector General and Conservator.

A Proceeding (No. 1 of 3rd February 1873,) before which all the employès at work in the Forest, 40 in number, were summoned, was then held by the Conservator. There being no evidence to shew by whom the timber in question had been felled, and the dragging or removal of green timber not being an offence under the Forest rules, these parties were all discharged; the case being further a very serious one as regards the interests of the Burma Company "Limited," the application for confiscation of the timber under Rule XXXVI was referred to the Court of the Magistrate of Toungoo.

In the Gwaythai Forest, but chiefly on the banks of the Gwaythai Stream 1,681 logs of unlawfully felled timber were also seized by the Divisional Officer. A large proportion of this timber bore traces of having been obtained from either trees felled green barked and exposed to the sun, or trees which after standing girdled a few months had been subjected to the "Thoonchoung-touk" or "3 pillar" system to expedite the flow of the sap.

Another method of treatment to which many of the trees had been subjected to ensure rapid seasoning was the "Puzoong-nhyat" which consists in cutting two gashes at opposite sides and then making a large hole through.

The inspection of these two Forests also shewed that the illicit girdling and felling had been confined almost entirely to the southern portion of each, with a view to mix up the unlawfully girdled trees, &c., with the Government girdled trees and stumps of the same.

There being abundant evidence of fraudulent marking, the Conservator issued a Notification offering 500 Rs. reward for information which would lead to the detection of the guilty parties, and further communicated with Moung Htoo, the Head Constable of the Myolha Police post.

These measures led to the arrest of Moung Koh the head employè of the Burma Company "Limited," in the Bimbyai Forest, and a very important confession on his part before the Magistrate of Toungoo as to the whole of the circumstances connected with the illicit girdling and fraudulent application of the Government mark.

Moung Koh was released, and a case instituted on the 17th February against the Burma Company "Limited" (Proceeding No. 42 in District Magistrate's Court) which after a very protracted trial and the examination of 23

witnesses, resulted in an order being obtained on the 19th April 1873, for the confiscation of 2,356 logs of unlawfully felled timber in the Bimbyai and Gwaythai Forests.

From the evidence adduced in this case, it appeared that 1,000 trees were girdled in the Bimbyai Forest, some in March, and some in December 1871, with the connivance of Mr. Graham.

Of these trees, a portion had only been felled when the inspection took place, which resulted first in 525, and ultimately the entire quantity, viz., 675 logs being seized.

With regard to the irregularities in the Gwaythai Forest, no direct evidence as to their extent was forthcoming, owing to the head-men of the leading employé (Mirza Mahomed Ali) absconding when required to appear, and owing to the strenuous efforts made by this individual to suppress information.

It was proved that he gave bribes freely and instructed Moung Ta-naw, Forester in charge of the Gwaythai Forest to decamp across the frontier, whence he was only induced to return on a promise of pardon. From the evidence of this subordinate and others it appeared that irregularities commenced in the Gwaythai by the girdling of between 600 and 700 trees in April 1870, or two months after the Government girdling operations had been brought to a close in that forest—the Government hammer being openly used in order to assimilate these trees to those lawfully girdled.

An additional number was girdled in 1871 and again in 1872, in the same localities and with Mr. Graham's connivance, and as the south Gwaythai Forest has the appearance of being quite gutted of mature trees,—portions resembling *jhoom* or *toungya* clearings, it may be safely assumed that the general report of 2,000 trees having being killed in excess of the number killed in the lawful girdling is correct.

This is also borne out by the fact that the outturn during the years 1870, 1871 and 1872, viz., 3,308 logs, plus 1,681 logs confiscated, will represent the yield of 1,000 lawful and 2,000 unlawfully girdled trees or 3,000 trees in all.

59. *Myolha Forest.*—An examination of this Forest brought to light the fact, that the illicit girdling noted in para. 46 of the previous year's Administration Report extended not only over the tracts north of the Myolha-gelay Stream, but also over those to the south where the Government girdling took place in 1869, and even across the water-shed into the Yeanai choung District, and further that the Government hammer had also been fraudulently applied to the trees in this part.

The bark on the illicit girdled trees had barely commenced to separate (a proof of their having been seasoning less than two years) and as additional inquiries only confirmed the information received last year as to the illicit girdling having been in 1871, and not in 1870, in Moung Eng's time, as sworn to in the Proceeding of 3rd April 1872, before Mr. Adamson, the parties concerned, viz., Mirza Mahomed Ali, Myat Hning and 5 others who gave evidence in behalf of the Burma Company "Limited" were charged with perjury in the District Court (Proceeding No. 4 of 1st quarter 1873.)

Two absconded but the remainder were brought to trial and after a protracted investigation in which 19 witnesses were heard for the prosecution and 5 for the defence, a conviction was obtained under Section 193 Indian Penal Code, the first, Mirza Mahomed Ali being sentenced to 5 years' rigorous imprisonment the second, Myat Hning to 3 years' and the others to one year each.

In this Proceeding as in those already mentioned as relating to the Bimbyai and Gwaythai Forests, the case was conducted by Mr Baden Powell on behalf of the Crown, and defended by Mr. Elmes of the Rangoon Bar.

Mirza Mahomed Ali and Myat Hpoo and Moung Hline his head men were also charged with mischief and theft of timber in the Myolha Forest: Moung Hline could not be arrested; but the others were tried and convicted under Sections 109, 379, and 427 Indian Penal Code, and sentenced to one year and six months' rigorous imprisonment respectively.

An order was also obtained from the Court under Rule 36 Forest Rules, for the restoration to Government of 994 logs lying in various parts of the Myolha Forest, as timber unlawfully felled during the occupancy of the Burma Company "Limited."

From the evidence adduced in these two cases, it appears that an extensive girdling took place in March and April 1871, or about 3 or 4 months after the issue of the Permit to the Burma Company "Limited," and that no notice was taken of the circumstance when twice reported to Mr. Graham, the Divisional Officer.

It further transpired, that Shwè Pying the Myolha Forester, who followed the Conservator to Toungoo in March 1872 and gave important information, was forcibly deported to the frontier by armed men in the service of Mirza Mahomed Ali, and was thus prevented from giving evidence in the Proceeding before Mr. Adamson.

At the very close of the dry season, Mr. M. H. Ferrars Assistant Conservator, examined the Myolha Forest, with reference to the extent of the injury sustained in consequence of the irregularities on the part of the Burma Companys' employès. His report illustrated by a carefully prepared sketch map shows the following trees, stumps, &c., to have been met with.

Unlawful girdled trees	916	
Stumps of unlawful girdled trees	1,515	
" trees felled green	324	
which give a total of ... ... unlawfully girdled or felled.	2,755	trees

60. *Tsamoh Forest.*—On the occasion of his visit to this forest on 12th February, a proceeding was held by the Conservator with reference to 50 teak logs obtained by an employè of the Burma Company " Limited" from green or living trees in the Kyoukchoung Forest near Shoaykiay-yet.

Out of six defendants, two were sentenced for Breach of Forest Rules, to fines of Rs. 50 and Rs. 20 respectively, and the remainder to a nominal fine only, they being coolies who had emigrated from Burmese territory. The timber was also confiscated.

Inquiries made by the Divisional Officer elicited the fact that an illicit girdling of about 300 trees had taken place in the Tsamoh Forest immediately above Tsamoh village in the rains of 1871, under the direction of Ko Bassai alias Breacher, late Forest Ranger, since dismissed for having monetary relations with the Permit-holders' employès

Several stumps of illicitly girdled trees and a few such trees were met with by the Conservator in the course of of his inspection with the Officiating Inspector General, and it was ascertained that most of the trees had been removed.

A case was instituted against Breacher in the District Court of Toungoo, (Proceeding. No. 18 of 1st Quarter 1873) for Criminal Breach of Trust, as a public servant under section 409 Indian Penal Code, and for trading unlawfully under Section 427. The head employè of the Burma Company "Limited," in 1871, one Ko Syay was also charged with theft and mischief.

It transpired that Ko Syay was a mere dummy in receipt of monthly pay from Mr. Graham, the late Deputy Conservator, and was employed in superintending the extraction of teak timber for that Officer. The Permit was originally made out in this man's name, and subsequently transferred to the Burma Company "Limited," but the signature of Ko Syay was found to be a forgery, and this individual proved to be ignorant of everything connected with the Permit and its transfer, although recorded in Mr. Graham's hand-writing.

Numerous witnesses were produced who proved conclusively, that an illicit girdling of 200 trees had taken place under the Forest Ranger and that the working of the Forest had been undertaken with Mr. Graham's authority, but having regard to the guilty knowledge of Breacher and his long experience in

the Department, the Court sentenced him to 3 years' rigorous imprisonment. The other defendant was discharged. In the course of this proceeding, it was also elicited that about 100 logs of Tsamoh timber had been sold by Mr. Graham at Toungoo, and that certain Tsamoh drift timber was stamped by his orders with the old "Sale mark" of 1866.

61. *Thoukyeaghat Forest.*—Late in the year inquiries instituted regarding the irregularities in this Forest disclosed the fact that the unlawful girdling (of 1,500 trees) had taken place in December 1871 and January 1872, or as soon as a new Permit had been issued to Teen Cowrie Maistry.

A document was found in the possession of one of the Permit-holder's head employès, granting permission to girdle 300 teak trees. It bore Mr. Graham's signature, and was dated as far back as 1866. A clumsy attempt appeared to have been made to change the figures 300 into 3,000.

These inquiries were followed by the seizure of 804 logs lying in the Forest, and a recommendation to the Local Government for the immediate cancelment of the concession referred to in para. 54.

62. *Hpyoo Forest.*—From the result of an examination of this Forest it appears that the irregularities have not exceeded 164 trees killed and felled in January 1872. Apparently the stir made by the discovery of irregularities in the Myolha Forest in February 1872, led to a sudden stoppage of the illicit work in this Forest.

63. *Padah and Moong Forests.*—These Forests lying in the extreme southern portion of the Sittang Division and just within the Shwè-gyeen District, were examined by Forest Ranger Shwè Yea in the course of the dry season.

Irregularities were discovered, but the Divisional Officer being unable to make an immediate examination of the localities in order to verify the Forest Ranger's report, the results were not communicated within the official year.

Inquiries however made by the Conservator at Toungoo fully confirmed the report of the Forest Ranger, and further showed that these irregularities in both instances had been undertaken with the connivance of Forest Ranger Breacher and the local subordinates two months after the close of the Government girdling operations in these Forests, and after the Conservator's inspection, noted in para 65 of the Administration Report for 1870-71.

64. *Youkthawah Forest.*—The Youkthawah Forest was also examined by Forest Ranger Shwè Yea, but no irregularities discovered, although from the seizure of a few logs of imperfectly seasoned timber at the Puzoondoung Revenue Station, there can be no doubt of the fact that some half-dead trees have been removed.

65. *Swah.*—This fine Forest, the largest and richest in the Sittang Division was also examined, but everything connected with the work of the Permit-holders, the Bombay Burma Trading Corporation "Limited," found to be satisfactory, their operations being confined wholly to dead and seasoned timber. A European Overseer had been deputed by the Corporation to supervise their work and report all irregularities, and it was due in the first instance to his exertions that illicitly girdled trees bearing the Myolha mark were found within the Yeanai watershed.

In passing through this Forest in company with the Officiating Inspector General, the Conservator had an opportunity of examining the work then in progress.

Extent of irregularities discovered. It may be useful here to summarize the number of trees found or ascertained to have been unlawfully girdled and felled in the Sittang Forests.

* Recently held by the Burma Company "Limited"	Myolha	2,755	
	Bimbyai	1,000	
	Gwaythai	2,000	
	Kannee	1,000	
	Tsamoh	250	
			7,005

* Also held by Burma Company "Limited." Padah Forest 439 trees.

Recently worked by Bombay Burma Trading Corporation "Limited"	Koonoung	218	
	Khaboung	67	
			285
Recently held by Teen Cowrie and Hyath Bux.	Thoukyeaghat	1,500	
	Hpyoo	168	
			1,668
		Total ...	8,958*

67. *Consequences of recent irregularities.*—The number of trees to be girdled yearly in the Sittang Division, according to the working Plan of 1868 is 2,000; hence it may be said that the illicit girdling noted above, represents in a general way, the premature girdling, &c., of trees destined to be removed within the period of five years, embraced between 1873 and 1877.

This will necessitate the suspension of girdling operations and occasion consequently a decrease in the annual out-turn of timber, but this represents only one of the many consequences arising out of these irregularities.

The effect upon the conservancy and preservation of the Forests is what constitutes the real damage done to Government interests.

Several thousand seed bearing trees have been removed or killed before their proper time, and the mischief in this respect has been greatest in the Gwaythai and Bimbyai Forests, as well as in parts of the Myolha, where the preponderance of first class trees of good quality occasioned more illicit girdling over smaller areas, and this, being over the tracts already visited by the Government girdling parties, resulted in almost a complete denudation of the ground of all seed shedding trees.

Then there is the fact, that a large proportion of the Forest population has become familiar with Breaches of Forest Rules, and the difficulties connected with their detection.

It is true, that the successful prosecution of many of the leading men concerned in these irregularities must have a wholesome effect; but it may nevertheless take years to eradicate the impressions caused by the commission of offences in so open and flagrant a manner.

68. *Review of irregularities.*—The document referred to in para. 61 seems to place it beyond doubt, that Mr. Graham must have initiated illicit girdling to a small extent some years ago, in the Thoukyeaghat Forest.

The next unlawful act openly connived at, and actually participated in by the Forest Ranger, was the girdling of 600 trees in the Gwaythai Forest, in excess of the number sanctioned in the Working Plan.

But inquiries everywhere and the evidence in all the recent cases in the District Court, make it very plain that nothing on a very large scale was attempted till the hot season of 1871, after the Conservator's annual inspection had been concluded.

At that time, the employès of the Burma Company "Limited" had recently entered upon the working of six Forests, which with the Gwaythai, made seven in all held by them. New Permits had also bsen issued for four other Forests, and it is a significant fact, that illicit girdling on an extensive scale commenced simultaneously almost between April and August 1871, in six out of seven of the Forests worked by employès of the Burma Company "Limited" and in two others worked by two natives of India, residents of Toungoo, after which it was commenced on a small scale in the Forests contiguous to them, the result evidently of the work people being tempted to believe that with such extensive frauds around them, their own malpractices would probably not come to light.

That detection was apprehended by the chief parties concerned, is evidenced by the fraudulent marking of the trees and the practice in many instances of limiting operations to the tracts containing the Government girdled trees, or those contiguous to them; but it would also appear that they reckoned greatly on the sub-

* This added to 310 trees discovered in the Moong Forest worked by Subbapathee, makes a total of 9,707 trees unlawfully girdled or felled in the Sittang Division, those in Padah being included.

ordinates in charge of the Forests, and the Divisional Officer also being in collusion with them.

The suspicions however, of the Conservator were excited in September and October 1871, by the condition of the timber passing the Puzoondoung station, it being evident that timber of the Government girdling of 1870, was being removed before its time, and when on his journey to Toungoo, to make the necessary inquiries, information of such a nature was received as led to the discovery of the extensive illicit girdling in the Myolha as early as February 1872, or about 10 months after the commission of the offence.

69. *Minor cases.*—During the year, four cases of Breach of Forest Rule XIX were tried by Mr. Adamson, and one case referred to the District Court.

In the four cases the persons concerned, were each fined Rs. 50, and two also punished by confiscation of the timber in their possession—one was appealed, but the sentence was confirmed by the District Court. The case in the District Court resulted in a fine of Rs. 100 being inflicted.

70. *Salween Division.*—Seven cases of Breach of Rule XIX of the Forest Rules, were dealt with by the Divisional Officer Mr. Slym, and one case referred to the Court of the District Magistrate.

Of the seven cases, five resulted in seven persons being convicted and fined, and the remaining two cases in the acquittal of the persons concerned, three in number. The fines realized in the five cases amounted to Rs. 140.

The case in the District Court also ended in an acquittal of the offender who was charged under Section 403, Indian Penal Code, the Court being of opinion that actual conversion of the property found in his possession had not been proved.

The destruction of a large number of Teak trees by toungya cultivation was discovered in the Upper Salween Forests, but these Forests not being within the limits of the Government Forests to which the Forest Rules apply, no action could be taken.

During the year 34 cases of Breach of the Kadoe Rules, Schedule VII Forest Rules, were investigated by Mr. Slym.

Of the 34 persons concerned, two were acquitted, five fined, 20 fined as well as punished by detention of timber, two had their timber detained and suffered simple imprisonment, and the remaining cases were pending at the close of the year.

The sums received on account of fines amounted to Rs. 645.

MANAGEMENT AND IMPROVEMENT.

(*a.*)—Girdling Operations.

71. In accordance with the orders of the Chief Commissioner in P. W. D. No. 3000, dated 19th November 1872, girdling operations were suspended in the Sittang Division.

72. With the approval of the Chief Commissioner the work in the Rangoon Division was carried on in the Upper Zamayee Forest, instead of the Lower Zamayee or Pegu Forest, consequent on the irregularities discovered in the latter and noted in para. 38 of previous year's Progress Report.

In accordance with the procedure adopted since 1870-71, sites for girdling in the Prome Division were selected in the tracts lying beyond and contiguous to the boundaries of existing and proposed Reserved tracts, and this necessitated the carrying out of the work in the north Naweng as well as the middle Naweng district.

73. The results of the work of the season are as follow :—

Division.	District.	Number of trees in working plan.	Number girdled.
Rangoon ..	Lower Zamayee ...	2,000	0
	Upper do. ...	0	2,000
Tharawaddie ...	Toungnyo and Padinben ...	3,000	3,000
	Toung Choung ...	2,000	2,002
Prome ..	North Naweng ...	0	441
	Middle do. ...	1,000	559
		Total ...	8,002

74. The separate Forest Sub-divisions in which the work was carried on will be found noted in Statement II.

The trees entered in this Statement as girdled in the Padinben Pa-lwau choung Sub-division of the Tharawaddie include the illicitly girdled trees referred to in para. 46, it having been deemed necessary to mark and include them as a means of detecting a repetition of the offence.

75. In accordance with the working plan, the direct execution of the work was entrusted to the Forest Rangers.

76. *Ranoon Division.*—In the Upper Zamayee district, the girdling work over 13 separate Sub-divisions was revised in January, and February, by Mr. Rind Assistant Conservator, and the number of trees reported as killed, viz, 1,166, representing 58 per cent. of the entire number girdled in the Forest found to be correct.

The work of revision was conducted in a very creditable manner, and occupied Mr. Rind in all, 15 days.

The girdling work also appears to have been satisfactorily executed by Forest Ranger Tok Poh, both as to the selection and marking of the trees above and below the girdle,—the time occupied in this duty was from 27th December to 25th February.

The girdled trees are of superb growth, having straight tall boles, the characteristic of this hilly region, and represent the finest of the trees 6 feet in girth and above, or about 51 per cent. of the first class trees on the ground.

77. *Tharawaddie Division.*—In the work of this Division, Forest Ranger Moung Kelay was occupied from 27th January to 13th May.

It was revised in the Toung choung district by Mr. Stratford, between the 1st and 14th May on his return from other duties, and by Captain Douglas, the Divisional Officer in the Toungnyo district, the time occupied being nine days.

In the former, two Sub-divisions were examined, and in a third Sub-division, the entire number of trees reported as girdled was counted, viz., 235, and found complete with only one exception,—five trees slightly under the standard size were met with, as well as four unmarked trees, the result apparently of some of the coolies falling sick and quitting the work.

In the Toungnyo district, the revision extended over two Sub-divisions, and from its results it would appear that the general performance of the girdling work has been satisfactory.

The girdled trees varied in girth chiefly between six feet and eight feet, and appear throughout the whole of the work to have been carefully selected in tracts conveniently situated for the removal of timber.

In the Toungnyo, they represented about 43 per cent. of the first class trees on the ground, and in the Toungchoung as high as 50 per cent

By way of experiment, a hammer of a larger size and more elaborate impression was used, but not being found to succeed, the re-marking of the girdled trees had to be undertaken with hammers of the ordinary size and pattern.

78. *Prome.*—The girdling work was conducted by Forest Ranger Tha Cho, but as the girdled trees stood in tracts over which strict conservancy will eventually have to be abandoned, it was not thought necessary to make countings to ascertain the percentage of first class trees killed.

Mr. Elsner reports that teak trees of second class size (four feet six inches in girth and below six feet in girth) containing marketable timber, are also to be found in the tracts visited this season.

79. The total expenditure involved in the girdling operations of the year, amounted to Rs. 2,350-2-6.

80. *Siltang Division.*—In the Koon Forest district, Mr. Ferrars Assistant Conservator was employed between 18th February and 10th March 1873, in ascertaining the number and quality of the trees girdled in the operations of 1871-72, regarding which complaints had been made by the Permit-holders, the Burma-Company "Limited."

Instead of 3,228 trees reported by Breacher late Forest Ranger, and noted in Statement II. appended to the Administration Report for 1871-72, the number of girdled trees, discovered by Mr. Ferrars, was as follows :—

First Class—Marketable	916
Do. Unmarketable	157
Do. Imperfectly girdled	63
Trees below 6 feet in girth—marketable	598
Total ...	1,734 teak trees.

Mr. Ferrars is of opinion that every girdled tree was discovered and noted, with the exception of about 30 in a tract which could not be approached by reason of wild elephants being in that part; but when the hilly nature of the country, density of the vegetation, and scattered condition of the teak producing tracts are considered, it must be apparent that Mr. Ferrars' figures can only be accepted as approximately correct. Hence the number actually girdled may be taken at 1,800.

It is a significant fact that, immediately prior to girdling operations in this Forest, a Burman hunter was killed in an encounter with wild elephants, and this may have had something to do with the full number of trees not being girdled.

Wild elephants are frequently met with in the course of girdling operations or in the work of revision, but, as a rule, disperse rapdly when fired at, as was the case this year in the Upper Zamayee.

81. "*Review of girdling operations for the past five years.*"—The following figures exhibit the results of the girdling work between 1868-69 and 1872-73 :—

Division.	Number of trees noted in the working plan.	Number of trees girdled.
Rangoon	12,000	12,015
Tharawaddie	20,000	20,117
Prome	6,000	6,000
* Sittang	12,000	8,071
* Salween	8,000	9,000
Total ...	58,000	Total ... 55,206

(*b*)—Blasting Operations.

82. *Tharawaddie Division.*—During the past season, operations were carried on under Overseer Hood and a party of 11 men in the Panyogalay and Mwaygyee choungs, both feeders of the Toungnyo Stream, in order to open up some large teak tracts contiguous to the Yoma range.

By the 1st May when the work closed, the rocky obstructions in the former had been entirely removed, while those in the Mwaygyee choung had been so far operated upon as to admit of the early completion of the work next season.

The stone is reported to be sandstone, containing nodules of hard stone, and the quantity removed 92,084 cubic feet in the Panyogalay choung, and 66,483 cubic feet in the Mwaygyee choung.

Upon the two obstructions, 199 lbs. of powder valued at Rs. 46-12 were consumed, and labor to the extent of Rs. 632 expended, which together with Overseer's pay, make a total expenditure of Rs. 1,488-12.

(*c*)—Clearing of Streams and other operations.

83. The silting up of the lower course of the Shwélai Stream mentioned in para. 71 of the previous year's Administration Report, occasioned during the past rains such a flow of water to the south and south-west as to convert the country between the Shwélai and Toungnyo streams into one vast sheet of water, and this eventually caused large sand-banks to form also at the mouth of the latter stream whereby the floating out of the timber was considerably retarded.

Sand-banks were also formed at the mouth of the Beeling River and occasioned such a collection of timber as to obstruct, for some time, all boat traffic, although

* In Sittang, girdling work suspended in 1872-73, and 1,455 trees less than the complement killed in 1871-72. In Salween, 1,000 in excess girdled in accordance with P. W. D. No. 657-76, dated 28th November 1871.

the contractors were immediately ordered to the spot for the removal of the timber.

As has been already remarked in the Administration Report for 1871-72, it is not advisable to attempt anything beyond the clearing away of jungle and accumulations of drift rubbish, where such would facilitate the passage of timber during the periodical inundations caused by the overflow of the Irrawaddie.

84. The clearing and preparation of the trunk road referred to in para. 98 of the previous years report as connecting the Prome road with the new site of plantation work was completed during the year: the entire expenditure including cost of drains, earth-work and temporary bridges amounted to Rs. 1,480.

(*d*)—Survey and Examination of the Forests.

85. This important work was carried on in the Tharawaddie, Prome, and Sittang Divisions, and had for its object—

(1.)—*Tharawaddie Division*—The valuation of the resources of tracts deemed suitable for reservation.

(1.)—*Prome Division, west of the Irrawaddie.*—Information relative to the condition of the northern-most teak localities worked during the last 11 years under Permits with the right to girdle.

(2.)—Valuation of the present resources of the upper teak localities in the Mattoon,* Mudday and Shwétangah districts.

(3.)—Selection of Cutch producing tracts suitable for reservation.

(1.)—*Sittang Division*—The revision of the figures of the working plan in the case of Forests affected by recent irregularities on the part of the Permit-holder's employés.

86. *Tharawaddie Division, "North Shwèlai."*—Valuation surveys held by Captain Douglas, the Divisional Officer in the Padet Myoung Sub-division of the North Shwélai district, in tracts contiguous to the Padet Myoung and Daulay Reserves, gave the following results calculated for 100 acres:—

Teak of first 3 classes girth 1′ 6″, 4′ 6″ and 6′ respectively.	Cutch, Acaca Catechu. above 4′ 6″ girth,	below 4′ 6″ girth.	Pynkadoe Xylia dolabriformis.
486	136	918	941

The examination of these tracts shewed generally that the Forest was of middling character containing between 300 and 700 teak trees of the first three classes on the 100 acres, and had a fair admixture of Cutch and Pynkado. Captain Douglas further remarks regarding it. "The tract has suffered to some extent from "Ya cultivation, yet it seems formerly to have been a fair average Forest, and in a "country so turned up and dry as the basin of the Shwélai Stream, where it is "often difficult even in January to find a sufficiency of water to supply the wants "of a small camp, it appears specially desirable to retain large Forest Reserves with "a view to their climatic value beneficially affecting the moisture of the surrounding country."

The abundance of Cutch in this part and sparseness of population are further arguments in favour of extending the areas already taken up as Reserves in this part.

87. *South Shwèlai.*—In the south Shwélai district, valuation surveys were held by Captain Douglas chiefly with the view of revising the surveys executed during the previous year by Mr. Stratford. The results as noted in Statement I will be found to compare favourably with that Officer's surveys, No. 35 to 41 in Statment 1 of the preceding year, the average obtained by Captain Douglas being 457 against 439 of teak of first three classes on 100 acres, and 516 Cutch trees on 100 acres against 591.

To the south of the Shaboung choung, the surveys executed by Captain Douglas, were too few to admit of comparison with those of Mr. Hough of the preceding year, and as the average obtained of trees of first three classes is in every

* or Mendoon District.

instance much higher, there is every reason to believe that they were held in particularly rich portions and cannot be accepted as a fair estimate of the resources of this part.

88. No topographical surveys were executed in this Division, except by Mr. Stratford, for the purpose of determining the direction and position of the boundaries of the proposed Reserves in the Shwélai Forest.

The survey and rectification of the boundaries of the Fuel Reserves near the Prome road, were also conducted by Mr. Stratford.

89. *Prome Division, west of the Irrawaddie.*—The Mattoon, Mudday, and Shwétangah districts were examined by Mr. Hough Sub-Assistant Conservator between January and May. Time did not admit of the Thellaydan, Padashin and Opho districts being visited.

90. *Examination of teak localities worked under long Permits with permission to girdle.*—The results shew that the rule of girdling only trees of a minimum girth of five feet at six feet from the ground, has been generally observed by the Permit-holder's employés; a few trees below the standard girth were found to have been felled in different places, but it was difficult to determine whether this was not the work of the people of the district, who seem in many parts, to be aware that the Forest Rules do not apply to the Forests west of the Irrawaddie and to help themselves to whatever teak timber they require.

"Toungya" or "jhoom" cultivation was also found to have committed great havoc over large areas and to exhibit a tendency to encroach further westward into the higher teak localities.

91. *Mattoon district.*—Wherever the Permit-holder's employès had been able to work in the most accessible localities, every available first class tree of marketable quality appeared to have been removed, but owing to the great preponderance in the number of trees of the third and fourth classes, no immediate injury appears to have been inflicted on the reproductive powers of the Forest.

Pushing into the higher hills, or upper spurs of the Arrakan Yoma, a totally uninhabited region, Mr. Hough came upon large teak tracts quite untouched on the Lhowa choung and its tributaries, above the point where floating of timber can only be undertaken after the removal of some rocky obstructions.

The hills here are described by Mr. Hough as rising to a height 2,500 feet and having steep slopes, so precipitous in places as to render the extraction of timber impossible except by means of slides. "The Forest from the crests down to "the banks of the ravines is deciduous, the upper part being covered by Forest of "Engyn" "Shorea Robusta," "Theya" and Pynkado, and the slopes and ravines "occupied by teak rivalling in size and symmetry of growth, the finest timber of "the eastern Prome Forests. Most of the first class trees average from eight to "ten feet in girth, and the undergrowth consists of Meen-wa, "bambusa stricta" on "the slopes and Kyathoung in the hollows." Between these Tracts and the main range of the Yoma, a distance of two to four miles, the Forest is evergreen.

Between the Hman and Paimyouk choungs, Mr. Hough's surveys gave in one part as high an average as 240 teak trees above six feet in girth on 100 acres, and in the survey of altogether 333·8 acres, in various parts of the Lhowa choung Sub-division, the following average was obtained on the 100 acres.:—

I Class.	II Class.	III Class.
6 feet in girth and above.	4′ 6″ girth and under 6 feet girth.	1′ 6″ and under 4′ 6″ girth.
96	92	212

There being upwards of 614 first class trees or about 1,000 trees above five feet in girth on the square mile Mr. Elsner computes the number of trees in Lhowa choung Sub-division available for removal at not less than 20,000, which may be taken to represent an out-turn of 30,000 logs.

It is interesting to note that on the Mhan choung, the result of Mr. Hough's surveys over an area of 62 1 acres bears out the estimate made in the Progress Report for 1857-58, page 34, of 338 first class trees on a quarter of a square mile surveyed in this part by Mr. Clemen, the average for this area obtained from Mr. Hough's survey being 346.

92. Near the Eingma, Letpwa, Peenaing, and Tarokepen choungs, some tracts were found which had not been worked out by the Permit-holders.

93. "*Earlier surveys.*"—When the earlier surveys were held, it was customary to count all teak trees within sight of the line traversed, and calculate roughly from time to time the distance on either side over which the countings extended. It will be apparent that unless frequent measurements were taken to compute the width of the tract as the vegetation varied in density, the most unreliable results would be forthcoming.

Under the rules now in force, only such trees are noted as are within 50 feet on either side of the line traversed.

It will not, therefore, occasion surprise that the recent surveys of Mr. Hough except in one or two instances, go generally to prove that the richness of the western Forests as regard the growing material on the square mile has been greatly over-estimated in the older surveys.

Thus in para. 27 of the Progress Report for 1857-58, the average number of teak trees per square mile on the hills in the Mattoon district is given at—

I Class	2,543
II "	3,989
III "	5,546
or a total of	12,078 trees of first three classes.

but from Mr. Hough's recent surveys over 141·1 acres in various parts not worked, and beyond the limits of "Ya" cultivation, the average number of trees on the square mile is found to be only—

I Class	947
II "	848
III "	1,278
Total ...	3,073 trees of first three classes.

In the richest tract visited by him, the average number of trees on the square mile was—

I Class	1,536
II "	933
III "	2,133
Total ...	4,602

It has to be noted, that Mr Hough's surveys in the upper tracts, which are the richest, extended over only ·22 square miles, while the earlier surveys are estimated to have covered five square miles; on the other hand, the earlier surveys were probably executed in the richest portions of this Forest, viz., along the banks of the ravines whereas the lines selected by Mr. Hough, crossed in many places the slopes and intermediate ravines at right angles, so as to obtain a correct average of the whole area covered by teak.

94. "*Results of present system.*"—Hence in estimating the general effects of the present system of working the Forests, a comparison between the figures of the present and older surveys is quite out of the question and the only course possible of adoption is with the aid of the recent surveys to compare the condition of the tracts worked out with those not touched.

Average number of trees on 100 Acres.

	I Class.	II Class.	III Class.	IV Class.
In tracts worked out—Surveys 1 to 8, also Nos. 44 and 48, a total of 167·8 acres	53	95	181	292
		Total of first 3 classes ...		329
In tracts partly worked, viz., surveys 9 to 26, Nos. 29, 31 to 38, 41 to 43, 45 to 47, 49, to 70, a total of 1139·5 acres	61	53	229	231
		Total of first 3 classes ...		343
In tracts never worked, surveys Nos. 27, 28, 30, 39, 40 and 71,—a total of 141·1 acres...	148	132	199	148
		Total of first 3 classes ...		479

Presuming that the last mentioned tracts represent generally the former condition of the western Forests before the working of them commenced, it will be evident that the proportion between the trees of different classes has been greatly affected, and furthermore, that the number of the first three classes has been reduced from 479 to 329 on the 100 acres which represents a decrease of 32 per cent. in the quantity of growing material.

The fourth class trees are so small, and subject to so many risks from fire and other causes, that they cannot be taken into calculation. They are besides not large enough to resist encroachment by other species.

Reference to the correspondence appended to the Forest Administration Report for 1860-61 will shew that with the introduction of the lease system with the right to girdle trees five feet in girth and upwards, the gradual exhaustion of the western Forests was anticipated.

So high a reduction as 32 per cent. in the growing material may be in a measure attributable to the inroads of toungya cultivation which is carried on to a great extent in the lower and more accessible teak tracts, but it may nevertheless, be safely concluded that it was mainly the result of the present system under which trees of so small a girth as five feet are removed without reference to the time required for the third class trees to attain that size.

Considering however, the increase of cultivation and population in the western Forests, it cannot be doubted that the abandonment of a strict system of conservancy over a large portion of them was the best course that could be adopted under the circumstances.

95. "*Mudday District.*—In the examination of this district, valuation surveys were held by Mr. Hough over an area of 246 acres with the following results calculated for 100 acres :—

I Class.	II Class.	III Class.	IV Class.
6 feet girth and above.	4′ 6″ girth & under 6 ft. girth.	1′ 6″ girth and above.	Below 1′ 6″ girth.
35	25	161	96
		Total of first 3 classes ...	221

The teak localities, in this district are believed by the Divisional Officer, to be completely denuded of marketable trees above five feet in girth, and with the exception of a few isolated places presenting difficulties to the removal of timber, the tracts examined by Mr. Hough may be said to bear out this conclusion.

96. *Shwètangah District.*—Valuation surveys held by Mr. Hough in this district, extended over an area of 508·5 acres and gave the following results calculated for 100 acres :—

I Class.	II Class.	III Class.	IV Class.
6 feet in girth & above.	4′ 6″ girth & under 6 feet.	1′ 6″ girth & above.	Below 1′ 6″ girth.
29	6	248	267
		Total of first 3 classes ...	283

The operations of the Permit-holders in this district also have resulted in the removal of nearly all marketable trees above five feet in girth.

The only tracts yet containing marketable timber of that size were found to be those on the higher hills near the Arrakan Yoma at the sources of the Upper Bhooyoh and Kyoukphyoo streams, but the number of such trees available for removal is not estimated by Mr. Hough at more than 5,000.

97. *General results*—In summing up the general results of Mr. Hough's examination of the western Forests which was performed in a very creditable manner, it may be stated that besides the following information regarding their resources, much additional information has been obtained upon which it will be possible to submit definite proposals for the demarcation of the higher tracts embraced between the lower hills and the Arrakan Yoma, the whole of which, it appears desirable to reserve for climatic purposes as well as the preservation of teak and other valuable species, such as "Engyn" (shorea robusta, and "Theya" (shorea *sp.*), which cover the crests of the hills in great abundance.

District.	Sub-division.	Estimated area.	Teak trees about 5 feet in height.
Mattoon ...	Lhowa choung	20 square miles	20,000
Do. ...	Letpwa and Peen-oing, along Thayetsan Ridge	2 do.	1,200
Do. ...	Eingma west ridge	4 do.	1,400
Do. ...	Tarokeben „	2 do.	500
Shwètangah ...	Bhooyoh, Kyoukphyoo ...	5 do.	5,000

98. *Selection of Cutch producing tracts suitable for reservation.*—This work was undertaken by Mr. Elsner the Divisional Officer somewhat late in the season, and extended over large portions of Mudday, Mattoon and Minday districts west of the Irrawaddie. His report shews most conclusively that the Cutch tracts in these districts are for the most part so intersected by belts of cultivation as well as injured by toungya cultivation practised by numerous villages in their midst, that it is impossible to establish Reserves in any of the best and most favorably situated tracts without interfering to some extent with the population.

Except in the south Mudday district, and at a considerable distance from the Irrawaddie, Cutch trees of a girth of four feet six inches have entirely disappeared. Valuation surveys held by Mr. Elsner over an area of 652·4 acres in the better portion of the Mudday gave the following average estimate of Cutch trees on 100 acres :—

4′ 6″ in girth.	3 feet in girth.	Below 3 feet.	Stumps of Cutch trees.
3	116	566	1,231

or a total of 685 trees and saplings on 100 acres, as the residue of 1,916 trees and trees seedlings which stood originally on this area.

Of trees four feet six inches and three feet in girth which represent the smallest trees available for the manufacture of Cutch, the proportion is found to be 1·1 to the acre.

In the Mattoon district, valuation surveys over an area of 633 8 acres in the Cutch producing tracts gave the following results calculated for 100 acres :—

3 feet in girth.	Under 3 feet in girth.	Stumps.
160	534	1,375

or a total of 694 Cutch trees and seedlings on 100 acres, or about one-third of the original number on this area.

In the Minday district, Mr. Elsner's surveys over 109.2 acres in the Cutch tracts gave the following results calculated for 100 acres :—

3 feet in girth	All under 3 feet girth	Stumps.
120	326	1,133

which shew that the existing trees and saplings amount to only 4·4 to the acre, and the stumps as much as 11.3 to the acre.

Owing to the Toungya fires obliterating all traces of numerous stumps, the present surveys can be barely accepted as a safe estimate of the former condition of the Cutch producing tracts west of the Irrawaddie.

It is probable that those which had been the richest tracts were not examined by Mr. Elsner, and this is, in a measure, borne out by the fact that in the almost untouched Cutch producing tracts selected on the Meeloung and Bamboong streams in the south Naweng district, east of the Irrawaddie, the average of Cutch trees of all sizes on one acre was found to be as high as 119, while the highest average west of the Irrawaddie, did not exceed 26 trees per acre.

The general average obtained in the surveys west and east of the Irrawaddie, was 18·5 and 16·8 trees per acre respectively.

99. *Cutch manufacture.*—In the face of the almost total destruction of the Cutch producing tracts in the Mudday and Mattoon districts, west of the Irrawaddie, and the objection which exists to the reservation of Cutch tracts in the lower hills and plains east of the Irrawaddie, it is satisfactory to be able to note that Cutch forms a large proportion of the growing material in the mixed teak and Cutch tracts selected for reservation in the hills of the middle and south Naweng districts, east of the Irrawaddie river, and in many of the Re-

serves already demarcated and recently selected in the Shwélai district of the Tharawaddie Division

The manufacturers of Cutch are reported to be shifting south-ward from the Thayetmyo district into the northern part of the Henzadah district, where Cutch tracts covering considerable areas have hitherto remained almost untouched.

There may be a falling off in the quantity of Cutch manufactured, but it is certain that the trade is in no danger of total extinction, the resources of the eastern Prome and Shwélai Reserves being available as soon as the tracts near the Irrawaddie are exhausted. In the Mudday and Minday districts west of the Irrawaddie, two Cutch producing tracts of considerable extent have also been selected as suitable for improvement and conversion by more or less artificial means into compact Cutch Forests.

100. *Sittang Division.*—Valuation surveys were held by Assistant Conservator Moung Poh O in the teak localities in the Kannee, Koonoung, and Bimbyai Forests.

The following comparison of the results in the Bimbyai Forest, with those of the former surveys noted in Statement I of the working plan of 1868, shews the proportion of trees of the various classes to be higher than what was originally estimated

	I Class.	II Class.	II Class.	IV Class.
Bimbyai.				
Survey of 1872-73 over 228·5 acres	570	154	333	1,432
Surveys of 1861 over 76 acres.	233	157	92	115

In the Kannee Forest valuation surveys over an area of 389·99 acres gave the following results calculated for 100 acres—

	I Class	II Class	III Class	IV Class.
Kannee	250	218	319	779.

or 787 trees of first three classes on 100 acres.

The earlier surveys of 1859 being deemed unreliable, were not entered in Statement I of the working plan.

In the case of the Koonoung Forest, Assistant Conservator Moung Poh O's surveys extended over too small an area to admit of a comparison of the results with those of the early surveys. The average obtained this season from surveys ever 34·2 acres was as follows—

	I Class	II Class	III Class	IV Class.
Koonoung	800	150	396	871

101. In summing up the results of work of the past year, it has to be noted that all topographical survey work was suspended in accordance with the orders of the Government of India contained in No. 19-1251, dated 7th October 1872.

The work was consequently limited to valuation surveys and preparation of sketch maps of the localities examined except in the case of the Shwélai Forest, Tharawaddie Division, where a topographical map being available of the whole Division, sketch maps were not required.

In the Western Forests, a rough topographical survey was also executed by Mr. Hough in conjunction with Valuation Surveys in the teak producing tracts and very useful sketch maps are in course of preparation.

The total area examined, over which valuation surveys were held during the year in the Prome, Sittang, and Tharawaddie Divisions, amounted to seven square miles.

102. *Review of the work of the five years between* 1868-69 *and* 1872-73.—The work connected with survey and examination of the Forests during the past five years may be thus summarized.

Area over which valuation or linear surveys have been held with reference to the growing material.

	Square miles.
Prome Division	23·65
Tharawaddie	13·23
Sittang	3·04
Salween	1·48
Rangoon	2·70
or a total of	44·10

Doubts have been from time to time entertained as to the utility of valuation surveys which occupy so much of the time and services of the Officers of the Department and of necessity involve much physical strain and exposure.

These surveys have been chiefly in connection with the preliminary examination and selection of tracts suitable for reservation, the procedure adopted by the Local Government having made it incumbent on the Forest Department to submit full information regarding the resources of the Forest tracts proposed for reservation; but the results of the past five years certainly shew that much unnecessary labor would be obviated if valuation surveys were deferred until a preliminary examination had been held and the exact wishes and objections of the Civil District Officers ascertained definitely and once for all.

It may be mentioned that the general rules upon which the selection of tracts for reservation was based, were duly communicated in the first instance to the District Officers, but it was only after estimates and maps had been prepared and submitted and the proposals carefully inquired into that the main objections to reservation generally in certain places could be ascertained.

Where this work is combined with a rough topograhical survey of the lines traversed and the main streams and watershed ranges are also surveyed and mapped as was done in the case of the eastern Prome Forests and north Tharawaddie Forests, the valuation surveys have been found to furnish all the data requisite for a computation of the growing material over the entire area and revision of the figures of the working plan which will admit of important alterations in the working of the Forests and selection of trees for removal.

In other Divisions the information furnished by the valuation surveys will be available for a partial revision of the figures and estimates in the working plan relating to some of the Forest districts.

103. The result of the topographical survey work of the past five years has been the compilation of the following maps—

Prome Division.—(1).—The entire eastern Prome Division carefully delineating the configuration of the teak producing tracts and hills between the plains and the Pegu Yoma, area 1,342 square miles. Scale, 2 miles to 1 inch.

2. The Western Forests embracing the Mudday and Mattoon districts' area 1·368 square miles. Scale, 2 miles to 1 inch.

3. Separate maps of the Choungzouk and Gwaicho Reserves embracing an area of 25·20 square miles. Scale, 2 inches to 1 mile.

Tharawaddie Division.—1.—The north Tharawaddie Forests in continuation of the eastern Prome Forest map and embracing that portion of the Division which falls under the jurisdiction of the Deputy Commissioner Prome. Area 276 square miles. Scale, 2 miles to 1 inch.

2. Entire Tharawaddie Division (now nearly completed) exhibiting the configuration of the teak producing tracts and the entire country between the Myetmakha river aud the Pegu Yoma.

3.. The block of hills forming the Mokka Beeling Special Reserve 22 square miles in extent (under compilation), scale 2 inches to 1 mile.

4. Separate maps, of the Kangyee, Choungwa, Tsapoke, Choungnagoon, and Tseetqueng Reserves, scale 2 miles to 1 mile.

Rangoon Division.—1.—The Pounglin Forest above Poungyee, area 132.5 square miles, scale 2 inches to 1 mile.

2. Thoongzai Forest above Way village, area 194·5 square miles, scale 2 inches to 1 mile.

3. Kyekpyoogan Block, area 4 63 square miles, scale 4 inches to 1 mile.

4. Tract between the Oakkan and Magayee streams, area 59·25 square miles, scale 3 inches to 1 mile, and Fuel Reserves, area 13 square miles.

Sittang Division—

1. Myolha Forest, area 97 square miles, scale 2 inches to 1 mile.

2. Bimbyai and Gwaythai Forests, area 56·5 square miles, scale 2 inches to 1 mile.

3. Pyoonchoung Reserve, area 5·49 square miles, scale 2 inches to 1 mile.

Salween Division—

1. Sinzway Reserve, area 14 square miles, scale 2 inches to 1 mile.

2. Separate maps of the Martaban Beeling, and Doomdamee proposed Reserves, scale 2 inches to 1 mile.

(e.)—PLANTATIONS.

104. The following additional areas have been taken up and cleared in extension of existing teak plantations in accordance with the instructions noted in P. W. D., No. 662-23 F., dated 5th November 1870.

Divisions.		*Acres.*
Rangoon.—Magayee plantation 57 miles north of Rangoon		..213
	Total area... 241½ acres.	
Less area of inspection roads and fire paths	28½ „	
Sittang.—Pyoon choung Thoukyeaghat six miles south-east of Toungoo ...		50

105. *Rangoon Division, Magayee plantation of* 1873, *area* 241½ *acres.*—This plantation comprises two blocks165½ and 76 acres in extent respectively, contiguous to each other, and situate on the rising-ground between the Magayee and Saloo streams, and about two miles eastward of the Prome and Rangoon road. Owing to the work having been so recently transferred to this locality, it was not deemed advisable to undertake more than the cultivation of about 200 acres in addition to the care of the previous year's plantation of 154 acres.

It was also deemed preferable not to take up additional land skirting the banks of the Magayee, owing to the increasing tendency of that stream to flood its banks since the formation of the Prome road which at this point runs at right angles to the line of drainage.

The surface soil in these blocks is a dark loam of considerable depth, resting upon a more or less gravelly substratum. The vegetation consisted of Forest of deciduous and other trees usually met with in the lower mixed Forests.

Among the principal trees were Gyo (*Schleichera trijuga*), Yendike (*Dalbergia sp*), Bambooay (*Carea arborea*), Pynkadoe (*Xylia dolabriformis*), Myoukchaw (*Homalium tomentosa*), and the wild mangoe (*Mangifera Indica*), many specimens of which and of Pynkadoe were of huge proportions.

There was also a sprinkling of teak trees, (114 in number), but chiefly of the third class, between 1½ and 3 feet in girth, while on the borders of the western block, teak trees of first class size as well as large stumps are to be met with.

106. *Clearing operation.*—As an experiment nearly all the larger and "hard grain" trees were girdled in October or about two months before felling operations commenced, at a cost of Rs. 1-2-6 per acre, but although the entire area was cleared as early as 10th January, the burn was not very satisfactory the result doubtless of so many trees being of large girth and requiring a longer period to season.

The "felling" operation was accomplished with the aid of Burmese and Shan coolies on daily pay, (8 annas per diem), at a cost of Rs. 9-6 per acre, which in such heavy timber Forest may be considered satisfactory and very creditbale to Mr. Rind, the Officer then in charge.

The practice of employing Madras coolies in this work was also discontinued they being less experienced in timber work, and accidents consequently being more frequent among them.

107. *Shan settlers.*—On the completion of the felling work, it was expected that the area to be treated under the hired cultivator system would have been made over to the Shan cultivators who had moved up from the Kyekpyoogan site the previous year, and undertaken the cultivation of 80 acres of 1872 plantation.

Mr. Nepean the Plantation Officer, however, deferred doing this until the areas had been further subjected to the lopping, piling and "after-burn" process, on the ground that a precedent had been established to this effect during the previous year and it was consequently politic not to insist upon the Shans undertaking so much additional labor caused by the indifferent burn, particularly as there was every prospect of inducing more Shans to settle at the plantation who would expect to be treated as liberally as the new comers of the previous year.

108. *Planting operation.*—The above additional labor of lopping and piling bestowed upon the clearing involved a further expenditure of Rs. 4-1-0 per acre, but it is satisfactory to note that the entire area cleared (viz, 213 acres), was then taken up by 105 Shan cultivators under the usual agreement to cover the ground with teak plants at 6′ × 6′ distances, and weed and look after them till the next hot season for payment at the rate of Rs. 10 per acre, exemption from capitation tax, and the privilege of raising their own crops between the rows of teak plants.

109. *Cost of plantation,* 1873.—All direct expenditure on the part of the Department having ceased about the close of the official year, it is possible to make the following estimate of cost of this plantation.

		RS.	A.	P.	
(1.)	Girdling	1	2	6	per acre.
(2.)	Felling	9	6	0	„
(3)	Lopping, piling, (unusual)	4	1	0	„
	Fire tracing Rs 1-10, teak seed, &c., Rs. 1-8	3	2	0	„
(4.)	Planting out with teak and keeping plants free from weeds, creepers &c., till next hot season	10	0	0	„
	Weeding roads	0	8	0	„
	Establishment charges covering one Goung at Rs. 20, two Peons at Rs. 12, proportion of Overseer' wages at 40...	4	12	0	„
(5.)	Capitation tax Rs. 5 for each cultivator.	2	8	0	„
	Tools, repair of tools, Medicines and Survey expenses	3	0	0	„
	Total ...	38	7	6	„

110. *Future cost.*—From Mr. Nepean's report it would appear that the Shans having now settled in considerable numbers, in all 217 men, women, and children near the plantation, there is some prospect of their head-men undertaking next year to relieve the Department of the preparatory work of clearing in addition to planting out the land with teak.

If their word can be depended upon, a slight decrease in the cost of forming teak plantations in this part may be looked for as shewn by the following estimate :—

	RS.	A.	P.	
By Shan cultivators ... ... Entire work of felling, burning, planting, and weeding plants for one year	20	0	0	per acre.
Fire tracing, Rs. 1-10, teak seed and nuseries, Rs. 1-8	3	2	0	„
Capitation tax Rs. 2-8-0, weeding roads, Rs. 0-8-0, establishment, Rs. 4...	7	0	0	„
Survey, tools, repairs, Medicines &c., ...	3	0	0	„
or a total cost per acre of	33	2	0	„

This represents the cost of formation or expenditure during the first year, and as the great advantage connected with the Shan hired cultivator system is the almost total absence of failures among the teak plants (two acres only being

allowed to each cultivator), and the earlier suppression of under-growth by the teak saplings, it may be assumed that a considerable reduction will be effected in the expenditure of the second year, and subsequent years.

Owing to the class of labourers employed and circumstances differing in the new site of operations, great difficulty has been experienced in estimating before hand the cost of the various works, and it is therefore satisfactory to note that instead of engaging a large number of coolies from time to time when required, and concentrating the entire number on one plantation at a time, Mr. Strettell has introduced the plan of having a fixed coolie establishment for each plantation, which may require weeding, &c., throughout the rains, and in which, other and more economical arrangements with Shans by contract could not be effected.

The advantage of this is that the expenditure although somewhat high can be estimated before hand, and the supervision and the control of the work considerably facilitated by a division of the ground into compartments representing the areas to be cleared of weeds, &c., within a certain time and in regular rotation.

This, it will also be seen, effectually disposes of the difficulty connected with the hiring of large gangs of coolies for short periods, referred to in the previous year's Administration Report. Under this system together with a plan of making a light clearing only where necessary in order to free the crowns of the saplings, the maximum expenditure during the second year inclusive of supervision and other charges, can now be definitely estimated at Rs. 14-6-0 per acre, and that of the third and fourth years at Rs.8-2-0 per acre respectively.

If to these figures be added Rs. 33-2 cost of the formation noted in this para, or the known cost of formation of 1873 plantation, it will be seen that teak plantations can now be formed and maintained for four years for a total cost to the State of Rs. 63-12 in the Rangoon Division.

111. *Magayee plantation of* 1872, *area* 142 *acres.*—This plantation represents the commencement of operations in this new site. As noted in para. 97 of the previous year's Administration Report, the extra work connected with shifting to a new locality precluded a larger area being taken up.

Although established due south of the "Yemanay thongwa" (or three branched Yemanay tree) in order to be above the influence of the Magayee river, this plantation was nevertheless flooded to a considerable extent in many parts during temporary freshes.

This resulted in occasional failures among the smaller plants, but affected chiefly four acres of the low lying parts which although not included in the plantation had been planted up and brought under cultivation by the Shans.

112. *System of cultivation.*—The entire area was cultivated in the following manner.

		Acres.
(1) By Shan cultivators undes the mixed system various crops being raised with the teak.	.. ..	82
By the Department with daily or monthly paid labor . .	(2.) Under the mixed system, cotton cultivated with Teak	56
	(3.) Under the pure system	4
	Total	142

113. *Growth of teak*—The growth of teak throughout, especially in the higher parts is very promising.

Mixed cultivation.—The cotton afforded a light shade to the teak seedlings, and thus far its cultivation was useful but the plants having been put out rather late a crop of only 260 viss of indifferent quality was realized.

Over the area cultivated by the Shans, large quantities of Indian corn, sweet potatoe, and almost every description of country vegetables were successfully raised and either sold on the spot or carted away to the larger villages in the neighbourhood for sale.

Cotton not yet sold, but price estimated at not more than Rs 90.

114. *Cost.*—Owing to heavy timber growing on this area, the banks of the Magayee at this part being fringed with high tree Forest, and owing to the incomplete burn of large quantities of felled timber, much additional expenditure had to be incurred on the removal of timber by elephants, lopping, piling, and refiring, before the work of cultivation could be commenced and the Shan cultivators who had moved up from Kyekpyoogan could be induced to take up their areas.

The expenditure was consequently very heavy and may be shewn under the two following heads—

(1.)—Preparatory expenditure, viz., survey of land, felling, formation of fire paths, and of inspection paths, collection of seed Rs... 24 0 2 per acre.

(2.)—Cultivation and maintenance... ... „ ... 24 3 6 ditto.

This gives an average expenditure for actual cultivation of Rs. 48-3-8 per acre, which added to cost of supervision (Rs. 2,398-1-0) or Rs. 16-2-1 per acre makes a total expenditure on this plantation of Rs. 64-5-8 per acre for formation and maintenance for the first year.

115. *Supervision.*—This high average of cost of supervision on the acre is of course due to the smaller area occupied, and circumstances connected with the position of the plantation and the execution of so many additional works precluding any reduction in the control establishment until the close of the year when it was fixed as follows:—

1	Overseer	Rs.	30
1	Goung	„	20
1	Burman writer	„	15
5	Peons @ Rs. 12	„	60
		Total Rs.	125

116. *Extraordinary expenditure.*—Consequent on the circumstances noted in the preceding para. and commencement of work in an altogether new locality necessitating much additional work on roads, drains, wells, clearing of sites, erecting cooly lines, and Overseer's quarters, additional and extraordinary expenditure was incurred to the extent of Rs. 4,518-14-8 which added to Rs. 800 spent on tools for felling and other purposes represents, an additional sum of Rs. 37-10-4 per acre as debitable to this plantation.

A large portion of this extra expenditure is more correctly chargeble against the entire block of plantations to be formed in this locality.

117. *Cost of experimental cultivation.*—The cost of experimental cultivation of cotton was Rs. 800.

118. *Total expenditure on Magayee plantation.*—The total expenditure during the year on the Magayee plantation of 1872-73, and the one now under formation amounted to Rs.12,962-8-4.

It is satisfactory to note in the matter of expenditure that five acres of the plantation 1872 were made over to 17 Shan families at the close of the year, under agreement on their part to weed and protect the teak plants for one year at the rate of Rs. 6-10-8 per acre for the privilege of raising various crops between the plants.

The Shan settlers have established two separate temporary villages, and from having a Hpoongyee with them, would appear to be reconciled to the new site of operations.

119. *Experimental cultivation of the Indian rubber tree in Magayee Plantation of* 1872.—The six plants of "*ficus elastica*" referred to in the previous year's Administration Report, have been in a very healthy and vigorous condition throughout the year and apparently did not suffer from the protracted drought of the past dry season.

The site on which they stand is a well drained slope flanking the south bank of the Magayee stream, and similar ground covered with Forest of a more or less moist description is to be met with for miles to the eastward: it

will be possible to take up a large area in this locality, suitable for plantations of the *ficus elastica* as well as for other valuable trees, such as *Cedrela Toona* and "Thitka" *Pentacē Burmanica.*

That the *Ficus elastica* promises to grow well here there can be no doubt of; but it remains to be seen whether the yield of "caoutchouc" will be similar in quality to that obtained from the plant in its natural habitat.

From the latest report it appears that 24 cuttings have been obtained from these plants and successfully set out.

120. *Kyekpyoogan Plantation of* 1871 *(356 acres.)*—In this plantation the work comprised the restocking of blanks at the north end, and the usual weeding operations.

From the fact that many failures again took place in the former, it appears unadvisable to attempt such work in future, particularly in places where "Ya" cultivation has had the effect of hardening the surface soil and bringing about a dense growth of the coarser description of grasses which impoverish the soil.

This and the weeding operation were not satisfactorily performed as regards expenditure, which in consequence of defective supervision on the part of the Overseer left in charge (since discharged) amounted to Rs. 14 per acre for restocking on 87 acres, and Rs. 16 per acre for 2 thorough weedings.

The total expenditure on this plantation during the year was Rs 1,049-12-9 or Rs. 29-7-6 per acre, inclusive of Rs. 7-6-1 per acre on account of clearing roads and fire tracing, and Rs. 2-2-0 per acre for supervision and contingent expenses.

The plants over a large portion of this plantation exhibit great variations in growth, some being exceedingly small, while in the better parts, Mr. Strettell reports that some of the trees, from seed sown direct in the rows, had attained a height of 17 feet 5 inches, and a girth of 6¼ inches.

121. *Kyekpyoogan Plantation of* 1870 (147.25 *acres*)—Operations in this plantation were entirely limited to two weedings and the removal of the extra stem in forked trees.

The expenditure incurred in this work was Rs. 16-1-3 per acre, which added to Rs. 7-6-1 for fire tracing and clearing roads, and Rs. 2-13 per acre for supervision and minor charges, makes a total expenditure of Rs. 26-4-4 per acre on this plantation.

An examination of the trees measured by Overseer Kent, shewed that the measurements recorded in Administration Report for 1871-72 para. 109 are incorrect, the work though extremely simple, having been very carelessly performed.

The growth of the trees generally in this plantation is good, and in parts exceedingly rapid, as will be seen from the following extract from a report by Mr. Strettell.

Site shewing most vigorous growth.

No. 1, height 19 feet 11 inches, girth 8½ inches, crown 1 foot 6 inches, tap root 3 feet 11 inches, lateral roots plentiful as also fibres, soil darker than that hitherto noticed and smaller proportion of sand.

No. 2, height 12 feet 10 inches tap root 1 foot 5 inches, crown 11¾ inches, lateral roots and fibres, plentiful and healthy, soil as above, but perhaps not quite so dark, average yield per acre at 6 feet apart 1270, average height about 16 feet 4 inches; both these sites on the dorsal of the Yoma.

Site shewing the least vigorous growth.

No. 1, height 15 feet 5 inches, girth 6 inches, crown 11 inches, tap root 9 inches, lateral roots and fibre in fair proportion and healthy, soil after passing through 6 inches superficial layer of sand, perfectly red, sandy clay.

No. 2, height 7 feet 7 inches, girth 3 inches, crown 8½ inches, tap root 1½.

Roots and fibres generally healthy, these two sites also on dorsal of Yoma, average per acre 1115, average height 12 feet.

Upwards of 54 trees were struck by lightning during the rains; of these three died, and the remainder were so injured, as to necessitate being cut back level with the ground.

The new shoots from the stools of these trees are reported as particularly vigorous and healthy.

122. *Plantation of* 1868 (35 *acres*) 1869 (145 *acres*).—The only work undertaken in these plantations had reference to weeding inspection paths, freeing the trees from creepers, pruning the lower branches where necessary, and lopping the boughs of some of the large trees which had been left standing with a view to impart protection against the wind.

The amounts expended were Rs. 6-13-3 and Rs. 8-4-4 per acre respectively in each plantation.

These added to Rs. 2-2-3 and Rs. 2-5 per acre for supervision, &c., make the total expenditure incurred in these two plantations during the year up to Rs. 8-15-6 and Rs. 10-9-4 respectively.

Measurements were taken of the trees in these plantations, but owing to the circumstances mentioned in the preceeding para. precluding any comparison being made with those of the previous year, there is no occasion to note the results.

In future, measurements will be taken in the dry season or dormant period when the trees are leafless.

It may not be out of place to note that after the close of the official year, portions of both these plantations aggregating an area of about 14 acres were found by Mr. Strettell to be attacked by large caterpillars of a black hue, covered with hairs, tubercles and spines, and believed by him to be of the Geometræ species. His report states. "The damage done by these insects fortunately did " not extend over a large area, but wherever they commenced their ravages not " a leaf was left on the tree attacked, and strange to say they seemed to work " in uniform blocks of perhaps two or more acres each. Eventually the cater- " pillars were disposed of by Minas which were to be seen feeding on them in " hundreds."

123. *Fire tracing*—Fire was successfully excluded from the entire block 683½ acres in extent, comprising the several plantations noted above.

124. *Total expenditure on Kyekpyoogan.*—The total expenditure on the Kyekpyoogan plantation during the past year, inclusive of fire tracing and restocking 87 acres of blank portions, amounted to Rs. 16,256-8-0 or Rs. 21-2-0 per acre.

125. *Sittang Division, Pyoon choung plantation, of* 1873, (50 *acres.*)—The entire area selected for this plantation, and lying east of the plantation of 1870, was made over soon after the close of the rains to Shans and Burmese to be cleared and planted under the "hired cultivator system," but towards the end of March the Divisional Officer Mr. Adamson, finding the felling work very much neglected by five of these men, resumed 15 acres and made other arrangements.

There is every reason to believe that this action led to the whole of the 50 acres being fired by the discharged men, as a fire broke out inside the block within 24 hours of their discharge.

The effect of this premature burn will be to increase very materially the cost of cultivation by reason of the extra lopping, piling, and weeding that will now be required

The amount expended on these 50 acres up to close of official year was Rs. 240.

126. *Pyoon choung plantation of* 1870, (*area* 296 *acres*)—The work conducted in this plantation comprised two light weedings during the rains and clearing of fire paths in the dry season. The cost of these operations, inclusive of supervision and fire tracing, was Rs. 4-5 per acre.

127. *Pyoon choung plantation of* 1869, (*area* 186 *acres*).—Similar weeding was carried on once over the whole of this plantation and a second time over half the area.

Including supervision and fire tracing in the dry season the amount expended was Rs. 3-7-7 per acre.

The total amount expended on the Pyoon choung teak plantation during the year for the maintenance of the older portion, and towards preparing 50 acres of new plantation was Rs. 2167-8.

128. *Exclusion of fire.*—From the main plantation embracing 644'78 acres fire was entirely excluded.

The proximity of this plantation to several villages and the traffic through it, render the exclusion of fire a particularly difficult undertaking, hence the results of the fire tracing undertaken at a very small cost, are very creditable to Mr. Dansey the Assistant Conservator entrusted with this particular work. The fixed establishment maintained during the year for the protection and management of these plantations, viz., one Goung and two peons involved an expenditure of Rs. 600 or 15 annas per acre.

129. *Tharawaddie Division : Boben choungwa plantation of* 1870, (*area* 70 *acres*).—This plantation received at the latter end of October a thorough clearing of grass and other overgrowth, under the supervision of Mr. Daly at a cost of Rs. 337-4 or Rs. 4-13-1 per acre.

The general expenditure on this and the older plantations for supervision and watching charges, amounted to Rs. 1-14-9 per acre thereby making the total expenditure on these plantations up to Rs. 773-9-8 or Rs. 2-4-0 per acre.

This and the older plantations aggregating altogether 340 acres were entirely protected from fire by the fire tracing around the Boben choungwa reserve.

This localitiy which is the finest of the sites hitherto selected for teak plantations, still retains a reputation for being exceedingly feverish.

Mr. Daly reports that at least one-third of the coolies were laid up with fever at the same time, and that several fell sick immediately after arrival and left without doing any work whatever. One death took place, and several of the men who were for the most part from Upper Burma had to quit in a dying state.

Mr. Daly as well as his peons and private servants were also attacked by fever, which in the case of Mr. Daly resulted in his being obliged to take leave.

It was in this plantation also that the late Mr. Bligh contracted the fever which ultimately proved fatal.

Measurements taken by Captain Douglas, the Divisional Officer, in fair average localities give the following results :—

Boben choungwa plantation 1866	...	6 trees measured
Average height	... ...	36½ feet
ditto girth	... ...	12⅔ inches
Boben choungwa of 1868, 12 trees measured,		
Average height	... ...	23 ft. 5 inches
ditto. girth	... ...	7¾ inches
Boben choungwa of 1870, 12 trees measured,		
Average height	... ...	11 feet
ditto. girth	... ...	4⅙ inches.

130. *Queaymakeing plantation of* 1869, (*area* 86 *acres.*)—This plantation was cleared of overgrowth towards the latter part of the rains under the supervision of Mr. G. Stratford and at a cost of Rs. 203-8 or Rs. 2-5-10 per acre.

It was also successfully protected from fire in the general fire-tracing work connected with the Kadin Beeling Reserve in which it is situate.

The total expenditure during the past year on this and the older plantations covering in all 144 acres, inclusive of watching charges, is estimated at Rs. 465 or Rs. 3-3-10 per acre.

Both in this and the Boben plantation, the Divisional Officer reports that great diversity exists in the sizes of trees, some of which make wonderful progress on certain slopes, while others although healthy, appear to grow very slowly.

A measurement of 10 trees in a different part of the plantation to that selected in the previous year, gave an average height of 24 feet and an average girth of 7½ inches.

131. *Myodwin experimental plantation of* 1862 *and* 1864 (*area* 10.75 *acres*).—This small and interesting plantation was protected from fire.

The trees are making good progress, the average height and girth of 10 trees being found to be 45 feet, and 16 inches respectively.

132. *Prome Division.*—In the Prome experimental plantation, nothing was undertaken during the year beyond the cutting of creepers and brushwood which impeded the growth of the saplings in the more recently planted portion.

The usual "fire tracing" work was also carried out and fire excluded.

Expenditure.—The total expenditure incurred in these operations was Rs. 612-12-4.

133. *Plantation of* 1857 (22 *acres*).—The annual measurement in November 1872 of the trees selected for measurement in this plantation, but now 46 in number, exhibits an average increase of ·75 inch per tree in girth at six feet from the ground compared with the measurements taken in the same month of the previous year: a portion of this plantation needs thinning.

Caterpillars.—A part of this plantation was also attacked by caterpillars a little after the close of the official year under review, but Mr. Elsner reports that no injury was apparently done to the trees by the loss of leaves.

134. *Total expenditure.*—The total expenditure on teak cultivation during the past year incurred in the several divisions will be found detailed in Appendix C.

135. *Review of the work of the past five years.*—The following figures exhibit the extent of land brought under teak cultivation during the past five years, viz., between 1868-69 and 1872-73.

			Acres
Rangoon Division.			
Kyekpyoogan, 25 miles north Rangoon		...	683·5
Magayee, 57½ miles north of Rangoon		...	142
			825·5
Sittang Division.			
Pyoon choung, 6 miles from Toungoo			600·78
Tharawaddie Division.			
Boben "choungwa"	255	...	341
Queaymakeing	86		
Prome Division.			
"Prome" 1 mile from Prome	13		13
Total		...	1780.28

the above represents an annual extension of 356 acres, and accords with the provisions of the revised working plan.

From 1868-69 to 1870-71, the work was carried on in accordance with the revised working plan of 1868 in the Rangoon, Tharawaddie, and Sittang Divisions simultaneously. Subsequently the Local Government in letter No. 662-23 F. dated 5th November 1870, having directed the concentration of the work in the Rangoon Division, proximity to a sea port, and greater facilities for control as well as procuring labor being deemed advantageous, the formation of regular plantations was restricted to the Rangoon Division, and the work in other Divisions limited to whatever could be undertaken at small cost under the hired cultivator system.

The cost of forming teak plantations was estimated in the working plan, at 30 per acre, but heavier expenditure at the outset was anticipated.

In the subsequent orders of the Local Government in November 1870, referred to above, the maximum cost was estimated at Rs. 60 per acre. The correctness of this last estimate has been fully borne out by the results and this is readily explained. Prior to 1868, plantation work was only carried on in a desultory manner, and areas of small extent were cultivated under the imme-

diate supervision of the subordinate officers in the department and consequently without any expenditure for supervision: The sites were also selected generally in places very easy of control.

The smallness of the areas also rendered it possible in the Sittang Division to get the entire work done by hired cultivators or Shan settlers. Hence it is not surprising that on operations being started systematically on a large scale and a careful system initiated of noting the expenditure in every detail, it was found that the formation and maintenance of regular plantations for a period of five years involved more than double the cost originally anticipated.

Not only was it not possible to obtain the requsite number of Shan cultivators on payment at Rs. 10 per acre plus exemption from capitation tax, but with larger areas, it was also found absolutely essential to success to have the ground marked off into compartments with roads and pathways between and encircled with a cleared fire path.

This and the employment of a control establishment resulted as matter of course in additional expenditure.

An examination of Appendix C will shew that an average yearly extension of 350 acres together with the maintenance of an equal area has not been effected at a less annual cost than Rs. 24,500 or Rs. 70 per acre on an average.

One of the main features of the system in force was the employment of Shan cultivators, and the raising of such crops and plants as were deemed likely to give an immediate return and thereby reduce the original cost of formation.

The result of this experimental cultivation is generally conclusive, as to the unadvisability of attempting such work except by means of hired cultivators who have a direct interest in the crops.

The attempt to raise coffee and fruit trees as well as the pine apple, all combine to prove that nothing can be successfully raised in a well-stocked teak plantation.

The dense shade of the teak saplings during the monsoon, appear to have a most injurious effect, while on the other hand, if the teak plants are put out at a considerable distance from each other, the benefit accruing from regular and close planting is entirely lost.

Another feature of the system sanctioned in 1868 was the selection of the best soil and most favorable localities for plantations, although the difficulty of procuring large areas conveniently situated was foreseen.

No doubts can be entertained regarding the excellence of the sites in the Tharawaddie Division as regards capabilities of the soil, they being selected in the hills or upper teak localities which constitute the principal habitat of teak, and where it attains the best proportions as regards height and regularity of growth.

The sites in the Rangoon and Sittang Divisions being on the contrary selected especially with reference to accessibility and the means of procuring Shan settlers, are in places which answer in description to the lower teak localities where the growth of the teak although not so tall, and less regular, is generally more rapid, and where greater facilities exist not only for the removal of timber but also for disposal of thinnings and other produce.

These latter localities besides possessing these advantages which are prominently noted in the orders of Government No. 613 F, dated 13th October 1870 are also less feverish than those in the hills, but at the same time they are open to the great drawback of having the work carried on in them in more or less detached blocks owing to the difficulty of obtaining the requisite degree of drainage combined with deep loamy soil over large and compact areas, rapid drainage being the first and foremost requisition in the proper development of the tree. To this difficulty and desire to form compact plantations easy of control may be attributed the presence of nearly 150 acres of somewhat shallow soil in the Kyekpyoogan plantation, partly in the orginal area selected by Dr. Schlich in 1868, and partly in the 1871 plantation, as referred to in para. 105 of the Administration Report for 1871-72.

136. *Summary of results.*—The general results of the operations of the past five years may therefore be thus summarized.

Area.—Areas covered with Teak.	Acres.
1.—In upper teak localities	341
2.—Lower do.	1426·28.
Total	1,767·28

The area noted against the Prome plantation is excluded, it being very small and more of an experimental character.

137. *Labor.*—The labor employed has consisted of two classes, viz. (1) Shan settlers receiving payment at Rs. 10 per acre and exemption from capitation tax, (2) Madras and Burmese coolies, engaged on regular wages at the usual rate of Rs. 12 per mensem or paid at 8 annas per diem.

Madras laborers can now be had in any number in the vicinity of Rangoon, and Shan settlers in the Rangoon Division have increased from 14 (in 1868) to 217 the present number. It is doubtful whether laborers of either of these classes can be induced to take up regular work in the upper teak localities.

138. *Cost.*—Under the Shan labor system, the cost per acre including collection of seed, fire tracing, and maintenance for four years is estimated at Rs. 46-4-0 per acre, but this is in light Forest, already more or less opened up by "Ya" cultivation.

In heavy timber Forest as will be seen from para. 110 of this Report, the expenditure cannot be reckoned at less than Rs. 63-12-0 per acre for formation and maintenance to the fifth year. Under the direct or monthly labor system, the cost may be estimated at Rs. 90 per acre.

The general results of the work of the past five years shew that 2·7 square miles of Forest, have been covered with teak plantations at an average cost to the State of Rs. 70 per acre inclusive of cost of experimental cultivation.

139. *Sittang Division—Cinchona cultivation—Thantoungyee, altitude 3,700 feet.*

At the close of the year, the plants in the main plantations numbered 522, there having been 24 failures and 192 additional plants successfully set out.

Propagation by cuttings.—The following plants representing cuttings prepared during the year are reported to be sufficiently advanced to admit of being set out in the main plantation in the rains of 1873:—

From plants at Thantoungyee	1,162
From trees at Plumadoe	200
Total	1,362

Propagation by seed.—The number of seedlings available for planting out in the main plantation in the rains of 1873, is estimated at—

Of 1871 "Succirubra" from Darjeeling seed	1,000
"Calasaya"	200
Of 1872 "Condamina" from Ootacamund seed	2,000
	3,200

For the reception of these plants, 5,062 in number about 5½ acres have been cleared of Forest, and prepared with pits at 7′×7′, distances.

Additional seed of the "Succirubra" variety was obtained late in the year from Darjeeling.

140. *Plumadoe Cinchona plantation (elevation 2,100 feet.)*—From the 118 trees, *Succirubra* variety, of the year 1868, 14 ounces of seed were obtained.

The total number of trees in this plantation is 240. Several small specimen pieces of bark from the trees in this plantation, and the two trees of 1868 at Bogalay were sent for analysis to the Government Quinologist Madras, and some pieces also to the Vienna Exhibition of 1873.

141. *Establishment.*—The following establishment has been maintained :—

1 Trained Assistant @	50
2. Assistants under instruction @ 9	18
4 Peons or gardeners	40

Expenditure.—The expenditure incurred during the year under review, inclusive of establishment, amounted to Rs. 1901-5-4 in the Thantoungyee, and Rs. 140 on the Plumadoe plantation or Rs. 2041-5-4 altogether.

142. *Review of the Cinchona cultivation work of past five years.*—Early in 1868, prior to which only two plants had been successfully put out at Bogalay (altitude 2,800 feet,) a new site was selected at Plumadoe by Mr. Kurz, Curator of the Herbarium, Royal Botanic Gardens Calcutta, and 188 plants of the *Succirubra* variety obtained by the Conservator from the Superintendent Cinchona plantation during his visit to Ootacamund were successfully set out at the close of that year. In 1869, in accordance with the orders of Government, a site was selected at a greater altitude, 3,800 feet, at Thantoungyee, 18 miles north-east of Toungoo ; a large supply of seed was also obtained from Ootacamund and operations commenced on the return of two Karen assistants from that place, where they had undergone a course of instruction in the cultivation of Cinchona, but the seed entirely failed consequent on the suspension of all work pending a reference to the Local Government, regarding the claims of some Karens of the Bghai tribe to the land in question : one of the trained assistants subsequently died from fever.

In 1870, propagation by seed obtained from Ootacamund again proved unsuccesssful, only 60 seedlings being raised, and the work was almost entirely confined to propagation by cuttings until the rains of 1871, when a large number of seedlings was obtained from seed supplied by the Superintendent Cinchona plantations Darjeeling. Fresh supplies of seed were also obtained from Ootacamund, and the results up to date shew 8,000 seedlings of *Succirubra*, *Calasaya*, and *Condaminia* varieties on hand of which about 5,000, it is expected, will be set out in the Thantoungyee plantation in the rains of 1873.

In the Plumadoe plantation, in which 52 failures occurred, principally in the lower site, selected by Mr. Kurz, the plants have been increased with cuttings and now number 240 in all.

The trees of 1868 commenced to yield seed in 1872.

In the Thantoungyee plantation in which the work has been concentrated since 1870, the number of trees successfully established is 522.

Cost.—The cost of the experiment up to date including pay of Assistants receiving instruction is Rs. 7,684-10-5.

5—Yield and working of the Forests.

143. From the Teak Forests in British territory, the out-turn during the year was as follows :—

	Logs.	Tons.
Brought to Depôts by Government contractors in the Rangoon and Tharawaddie Divisions ...	9,342	10,018·7
Obtained from the seashore, drift, and miscellaneous sources	4,078	3,954·3
Worked out by Permit-holders	.....	.....
Including 4,790 logs or 4,406 tons from the Attaran Forests held under Permits of 30 years.	28,785	25,725
	42,205	39,698·0

These figures exhibit a decrease of 14,643 tons as compared with those of the previous year. In para 156 of the Forest Administration Report for 1871-72, it was explained that the reduction in the number of trees to be girdled annually in accordance with the revised working plan of 1868, would affect the out-turn of the Forests, but there are additional causes to which the decrease during the year under review may be attributed.

There is also a slight decrease in the quantity of timber collected as drif

or obtained from the seashore, but the quantity obtained in 1871-72 was more than 2,000 logs in excess of the normal annual collections.

It is a significant fact that in the Sittang Division, where hitherto, little or no drift timber has been collected as unclaimed, as many as 209 logs were sold during the year as unclaimed at Toungoo.

144. *Government Agency system.*—The out-turn from the Forests worked under the Government Agency system, shews a decrease of 6,182 tons compared with the yield of the previous year. As explained in the Forest Administration Report for that year, the out-turn for 1871-72, was considered above the average.

The decrease during the past year, was however, mainly due to the great mortality among the elephants at work in the Forests as well as to less seasoned timber being available which necessitated a reduction in the number of contractors.

The out-turn from the Forests worked by Government includes 1,669 logs of 1,877 tons of first class select teak timber, and 21 logs Pynkadoe or iron-wood supplied to Department Public Works at the *Prome* road.

Of the timber 70 per cent. was of first and intermediate classes and 30 per cent. inferior.

145. *Other timber.*—In addition to teak timber as noted above, the following timber was also extracted under the Government Agency system from the Forests in the Salween Division :—

" "Thitkadoe" Cedrela toona" and "Thitka" "Pentăcē Burmanica" 314 logs or 263 tons.

When the demand for this description of timber arose, the season was too far advanced to admit of a larger quantity being extracted.

146. *Departmental elephants.*—At the close of the previous year, the Department had—

On hand ...			101 elephants.
Add number purchased during the year, viz.,			
For depôt and carriage purposes ...		1	
„ loan to contractors		14	
		—	15
	Total		116
Deduct—			
Paid for by contractors		7	
Transferred to ditto		1	
Sold		3	
Casualties		20	
		—	31
Balance on 31st March 1873...			85

The cost of feed as noted in Appendix B., was Rs. 147-13-10 for each animal or about Rs. 12-5 per mensem. The heavy casualties during the year were chiefly the result of the epidemic referred to in the Administration Report for 1871-72, as one of unexampled severity, affecting even the wild herds and extending over the Forests on both sides of the Pegu Yoma.

During the year, the procedure in loaning elephants to contractors has been improved with the sanction of the Local Government by the introduction of two new forms of loan and mortgage bonds approved by the Government Advocate.

A sum of Rs. 14,511-5-3 was recovered during the year from contractors for value of elephants supplied under the loan system.

A sum of Rs. 6,812-11-10 was also realized as interest. It has to be mentioned that a large sum due on account of elephants supplied under the loan

system may be considered irrecoverable, many of the animals having died within a month or two of their transfer, and before any work could be done with them.

The sanction of the Local Government is about to be solicited for a remission in full or part, according to circumstances in the case of each contractor affected by the epidemic, or whose discharge has been necessitated by a reduction in the number of trees girdled annually.

147. *Permit system.*—The out-turn under the Permit system exhibits a considerable decrease compared with that of the previous year, viz. :—

Decrease in Prome and Rangoon	... ...	2,928 logs.
Do. Sittang	... ...	6,821 „
		9,749 „
Less increase in Salween division	... ...	1,909 „
Total decrease	...	7,840 „

This reduction is chiefly due to the unprecedented mortality among elephants, which occasioned a suspension of the work in some of the principal Forests in the Sittang Division.

The casualties amounted to 26, or 12·3 per cent. of the entire number of animals in the Forests, but were limited in their occurrence chiefly to the northern districts where many of the elephant owners very naturally became alarmed, and abandoned the work.

It has also to be noted, that no timber was extracted from the Koon Forest, the Permit-holders, the Burma Company "Limited" having suspended operations, pending a settlement of their claim for additional girdled trees.

In the Western Prome Forests, the out-turn was sensibly affected by the Permit-holders being under the necessity of discharging nearly all their employés, owing to pecuniary difficulties and of making new arrangements for the extraction of timber. In the out-turn also of the Eastern Prome Forests, there was a considerable falling off, consequent on want of rain at the close of the monsoon.

The increase in the out-turn of the Salween Division, is due to the extraction of a large number of short pieces from the Pandau, Hline-bwè, and Lower Salween Forests, to meet the demand for timber of that description.

No timber was brought away from the Upper Salween Forest third Division, the Yoonzaleen, Beeling, and Doomdamee Forests, the Permits of the three first having been resumed by order of the Chief Commissioner for non-payment of minimum revenue and instalment of Permit fee, and no tenders having been received for the working of the Doomdamee Forest in which the girdled trees had not stood their full time.

From the Thoungyeen Forests, as was anticipated, only 1,702 logs were extracted under a Permit of one year's duration by Sit Paw the head Karen of the district.

Owing to various objections to working out so small a quantity annually from so remote a Forest, it appears almost desirable to work these Forests every alternate year.

No timber whatever was extracted from the Houndraw Forest, the Permit of which was also resumed for non-payment of instalment of Permit fee. There is little or no seasoned timber in these Forests and the fee tendered for the Permit was only Rs. 300.

148. *Rates on Permit-timber.*—No alteration has taken place in the rates of Revenue leviable on timber extracted under the Permit system.

In the Salween Division, orders were received from the Local Government to discontinue the practice of levying duty at the Kadoe Revenue Station on timber from the British Forests on the expiry of the Permits now in force.

SECTION IV.

YIELD OF THE FORESTS BEYOND THE FRONTIER AND MANAGEMENT OF THE KADOE REVENUE STATION.

149. During the year, the importation of teak timber from Forests beyond the Frontier was as follows :—

		Logs.	Tons.
By the Salween river to the Kadoe Revenue station	...	60,650	60,650
By the Irrawaddie river } Free of	...	5,942	4,397
„ Sittang river } duty.	...	12,980	12,980
Total	...	79,572	78,027

A decrease of 20,693 tons took place in the foreign timber imported by the Salween river.

150. *Decrease in out-turn.*—This was the result of the scarcity of rain towards the close of the season, which occasioned a falling off to the following extent in the out-turn of several Forests :—

Karennee	...	...	...	... 6,400 logs
Kyane Toung	...	...	...	... 2,103 „
Mhinè Loongyee		...	...	... 15,270 „

The out-turn of the foreign Thoungyeen Forest also exhibits a falling off to the extent of 5,677 logs, but it is uncertain whether this is due to the short rain-fall or to exhaustion of the Forests.

Mr. Slym, the Deputy Conservator of Forests, Moulmein, however writes, "the "decrease in foreign teak timber is entirely due to the scarcity of rain and the "early closing of the monsoon, as all the districts contained large quantities of "timber ready for floating, and the people were not disturbed in their operations, "dacoities having almost wholly ceased."

The importation of timber by the Sittang river from the Ningyan Forests exhibits a decrease compared with that of the previous years to the extent of 2,272 tons. This is also reported to be the result of a short rain-fall.

By the Irrawaddie river, there has been on the contrary an increase of 2,583 tons compared with the importation of 1871-72, the result doubtless of more energetic measures in the working of the Forests.

The subjoined figures exhibit the annual importation of foreign teak timber into the Province during the past four years.

	1869.70		1870-71		1871-72		1872-73	
	Logs.	Tons.	Logs.	Tons.	Logs	Tons.	Logs.	Tons.
By Salween	...44,262	40,721	73,169	67,315	88,417	81,343	60,650	60,650
„ Sittang	... 5,621	5,621	11,355	10,232	15,347	15,252	12,980	12,980
„ Irrawaddie	...11,660	5,815	17,390	4,937	3,642	1,814	5,942	4,397

In calculating the tonnage of the timber imported during the past year the average number of cubic feet on each log of Sittang and Salween timber has been taken at 50 cubic feet.

151. In addition to Foreign timber imported by the Salween river, the following timber from the British Forests was also reported for duty at the Kadoe Revenue Station during the year.

	Logs.		Tons.
From Forests worked under Permits of 3 to 6 years duration...	13,504	or	7,292

This makes a total of 74,154 logs reported for duty at the Kadoe Revenue Station.

152. *Timber cleared.*—During the year, the number of logs cleared on payment of duty was 98,515 or 24,146 in excess of the number cleared in 1871-72, thereby reducing the stock in hand to 31,445 logs at the close of the year.

153. *Results of the year.*—Regarding the results of the year, Mr. Slym writes :—

"Although the outturn of foreign timber has been small compared with that of previous years, yet with the large stock of timber at Kadoe at the close of the former year, the supply has been sufficient to satisfy the demand and any increase in it would have spoiled the tone of the market. The quality of the foreign timber has also been particularly good this year and may be shewn as follows :—

Kyanetoung	...	only	11	per cent unsound.
Mhineloongyee	...	...	2	do.
Foreign Thoungyeen...		...	16	do.
Karennee	...	...	5	do.
Dahquin	...	...	20	do.

The year has not consequently been an unfavorable one for the Moulmein Merchants, and for the importers of foreign timber, the former being able to ship as much timber as they required, and the latter having sold their timber at fair and profitable prices.

The demand in the Bombay market has been a little dull, but the native fleet has carried its usual tonnage to the Madras coast, where the cargoes have not been sold to disadvantage.

154. *Export of teak timber.*—The export of teak timber during the year was 78,657 tons or 31,657 tons in excess of that of the previous year. The export during the last three years may be thus shewn :—

	1870-71	1871-72	1872-73
Europe ...	23,299	27,733	37,140
Indian and Burmese ports.	30,605	29,267	41,517
Total tonnage ...	53,904	57,000	78,657

From these figures it will be seen that the export to Europe has increased by 9,307 tons, and for Bombay and other Indian ports by 12,250.

The following shews the transaction in tonnage during the year at Moulmein :—

	1st April 1872—Balance at Kadoe	44,661	1,33,720
Import.—	Imported across the Frontier (by the Salween river) ...	82,343	
	From British Forests	6,716	
Export.—	Exported by sea	78,657	1,18,657
	Balance at Kadoe 31st March 1873	40,000	

The difference of 15,063 tons will be accounted for by the stock of squared timber in the yards at Moulmein, and that which was consumed locally.

155. *Size of timber.*—The tonnage of the foreign timber is much higher on the log compared with the figures of the previous year. This is due to the tonnage being formerly calculated at 46 cubic feet per log, whereas during the past year, the average has been ascertained by the careful measurement of 10,000 logs to be as high as 69½ cubic feet per log of foreign timber and as low as 26⅓ cubic feet per log in the case of British timber, owing to the large quantity of short pieces and crooks which it contained.

The teak timber exported to Europe consisted of 35,100 squares, 1,581 planks and 28,445 staves.

The outlet for teak of second class quality has considerably improved as will be seen by the increase of 12,250 tons in the shipments to the Indian Ports and by the Kadoe Depôt being almost cleared of such timber.

156. *Export of other timber.*—Of the timber of the "Padouk" (Pterocarpus dalbergioides) and "Pyimma," (Lagerstremœa regina) varieties, upwards of 607 tons were exported during the year from Moulmein.

KADOE REVENUE STATION.

157. The cash receipts of the Kadoe Revenue Station were during the year—

	Rs.	A.	P.
Duty on foreign timber	2,13,147	14	0
Home or Forests.			
Duty on British timber	29,078	9	0
Sale of confiscated, drift, and waif timber ...	18,388	0	0
Miscellaneous fines, &c.	5,934	9	0
Total ...	2.66,549	0	0

158. The expenditure of the Revenue Station as shewn in Form No. 21 was :—

	Rs.	A.	P.
A—Conservancy and working	9,096	5	0
B—Establishments not including pay of Executive Officer in charge.	6,161	8	0
Total Rs. ...	15,257	13	0

159. Revenue on "Home or Forests" being deducted the net Revenue of the Kadoe Revenue Station will be Rs. 197,890-1-0 or Rs. 52,787-11-0 in excess of the net Revenue of 1871-72.

The decrease of Rs. 4,358-1-0 in the expenditure under A, Conservancy and Working is chiefly due to the collection of a smaller quantity of drift teak timber on the Salween river above and below Kadoe, viz., 3,592 logs or 930 logs less than the quantity of previous year.

The number of drift logs made over to claimants was 1,214, the number sold was 1,350 and the balance at the close of the year 1,022.

160. No changes have taken place in the management and control of the timber revenue station, except that Assistant Conservator Moung Poh O was retained at Kadoe for about four months for the control of the depôt : The work of the Kadoe office was carried on as usual by the Deputy Conservator in charge of the Salween division in addition to other duties.

SECOND PART—GENERAL.

I.—FINANCIAL RESULTS.

161. The Budget allotment of expenditure for the past year, was Rs. 3,95,000 and the estimate of receipts Rs. 7,50,000, a net Revenue being anticipated of Rs. 3,55,000.

162. The cash receipts amounted to Rs. 8,27,568-13-7 contributed by the several Forest Divisions, in the following manner.—

Tharawaddie and Rangoon	3,75,038	12	4
Prome	34,854	15	9
Sittang	92,702	5	2
Salween	58,423	12	4
Kadoe Revenue Station	2,66,549	0	0
	8,27,568	13	7

163. The expenditure of the Department was, during the year—

A.—Conservancy and working	2,03,929	2	9
B.—Establishment	1,32,268	9	7
Allowances, refunds, and drawbacks	289	2	6
Total	3,36,486	14	10

164. This leaves a cash surplus in favor of the year of Rs. 4,91,081- 14-9, or Rs. 1,36,081-14-9 in excess of the Budget Estimate.—

165. The Revenue and expenditure of the several Forest Divisions, may be thus shown.

Divisions.	Revenue.			Expenditure.			Surplus.			Remar ks.
Tharawaddie and Rangoon... ..	3,75,038	12	4	2,45,988	6	10	129,050	5	6	
Prome	34,854	15	9	14,674	3	9	20,180	12	0	
Sittang	92,702	5	2	33,999	15	9	58,702	5	5	
Salween	58,423	12	4	26,277	5	0	32,146	7	4	
Kadoo	2,66,549	0	0	15,257	13	0	2,51,291	3	0	
Total Rs. ...	8,27,568	13	7	3,36,197	12	4	4,91,371	1	3	

166. If from the surplus a sum of Rs. 289-2 6 is deducted for allowances refunds, and drawbacks, there will be a net Revenue for 1872-73 of, on—

" Home or Forests "	2 93,191 13 9
" Kadoo or Foreign "	1,97,890 1 0
	Rs. 4,91,081 14 9

Compared with the net Revenue of 1871-72, there is an increase to the extent of Rs. 97,876-9-8. This is accounted for by a decrease in timber expenses commensurate with a reduction in the quantity of timber extracted and by half a lakh excess Revenue realized on Foreign timber.

To the above figure must be added the actual sums to the credit of the Department,—

Value of timber sold by Public Auction.	1,312 0 0
Permit Revenue due on timber in course of transit to the Revenue Station, Salween Division...	18,179 12 0
Difference of value of stock in 1872-73 as compared with 1871-72	4,791 0 0
Total assets	24,282 12 0

The operations of the past year exhibit therefore and actual surplus of Rs, 515,364-10-9.

The surplus here noted is less than that of the year 1871-72; by Rs. 44,392-12-1. This is chiefly owing to the great mortality among Elephants causing a depreciation in the value of the live Stock.

167. The cash transactions of the past year were as follows :—

DRAWN.

	Rs	A.	P.
Cash drawn from State Treasuries.	3,43,405	6	6
Income Tax	912	12	0
Other remittances	6,770	2	10
Excess of receipts over withdrawal of Deposits.	807	1	8
	3,51,895	7	0

OUTLAY.

Expenditure of the department	3,36,197	12	4
Difference between allowances, refunds and drawbacks...	289	2	6
Difference between remittances to treasuries &.	4,412	12	2
Allowances, refunds, &c., and drawbacks...	10,965	15	7
Cash balance in favor of the year.	29	12	5
	3,51,895	7	0

168. The amount expended in the extraction of 13,418 logs and 2 sleepers by Government contractors, is Rs. 2,39,323-6-10, which exhibits the average cost per log at Rs. 17-13-4 and average cost per ton at Rs. 16-6. This increase of Rs. 3-15-9 per log, and Rs. 1-15-2 per ton is due to the large proportion of timber, about 3,000 logs, being neaped in the streams.

169. During the year under review the following timber was sold.

Particulars.	Logs.	Amount realized.			Remarks.
By Public Auction	11,820	2,55,255	"	"	Mixed quality.
On Indents by P. W. D., and private parties.	2,661	55,369	1	5	Selected timber, but chiefly of smaller sizes.
Sleepers.	1,000	1,105	8		
Drift confiscated and Waif.	2,082	23,377	10	9	Second Class quality. Chiefly inferior.
Total	16,563	3,35,107	4	2	

170. The average price obtained per log over the entire quantity of mixed quality was Rs 20-3-8 and Rs. 20-9-7 per ton, shewing a decrease as compared with the average of 1871-72, of Rs. 3-2-1 per log or Rs. 2-4-5 per ton. This is the result of the larger proportion of second class timber disposed of during the year, prices being good and the stock of first class timber being very limited, owing to large deliveries to the Department P. W., during the previous year.

The market price for first class teak timber was on an average Rs. 50-0-0 per ton throughout the year.

171. The net Revenue realized during the year was Rs. 2-6-4 per log, and Rs. 4-3-7 per ton shewing a considerable decrease as compared with the rates of 1871-72. This is due to the large proportion of second class timber disposed of as stated above, and to the average being affected by the larger number of sleepers included in the quantity of timber sold during the past year.

172. *Permit timber.*—The out-turn from Forests worked under the Permit system may be thus classed—

	Logs.
Prome east and west	7,065
Rangoon Division	346
Sittang Ditto.	10,192
Salween Ditto...	6,352
Total	23,955

or 21,139 tons upon which Revenue was realized, to the extent of Rs. 2,25,614-14-4. The following charges are debitable to this account.—

	Rs	A.	P.
Prome East and West	14,674	3	9
Rangoon Division	1,080	0	0
Sittang "	33,999	15	9
Salween "	26,277	5	0
Quota of direction	11,456	10	4
Total Rs.	87,488	2	10

N.B.—With reference to para. 168 it has to be remarked that the out-turn of the year has been 8,914 logs short of that of 1871-72, thereby exhibiting proportionately heavier cost. The Net Revenue shown in para. 171 does not exhibit the actual difference between cost of extraction and amount realized by sale, as the expenditure charged against the years out-turn includes as usual such heads of expenditure as Plantations, Forest Work and Forest Survey, Communications, cost of Elephants and Stock, aggregating Rs. 56,996. If this latter figure be excluded, the Net Revenue per log will be considerably higher, viz., Rs. 6-10-4 per log, which will be found to compare favourably with the Net Revenue on the Permit timber.

This gives a profit of Rs. 5-7 per log or Rs. 6-1 per ton, exhibiting a slight decrease on the average of the previous year.

173. The following Permits lapsed during the year.—

Salween Division.—Thoungyeen.
Prome Ditto. —Mudday.

For the former a Permit for one year was again given to Sit Paw, the Head Karen of the Thoungyeen district, and for the working of the latter an extension of the Permit for one year was granted to the late Permit-holder with the sanction of the Local Government.

II—General Remarks.

174. *Inspection Tours of the Conservator.*—In August the Forest Offices at Myanoung and Prome were inspected by the Conservator who proceeding thence by the Myetmakha river to Taboowa and Oakkan, visited the Magayee and Kyekpyoogan teak plantations, and returned by the 13th September to Rangoon.

175. *Deputation of Officiating Inspector General of Forests.*—Mr. Baden H. B. Powell B. C. S. was deputed on special duty to this Province in Department Agriculture Revenue and Commerce No. 1387, dated the 16th November 1872, and arrived in Rangoon on 21st December 1872.

176. *Tour of Inspector General of Forests, and Conservator.*—On the 27th December, the Conservator proceeded with Mr. Baden Powell to the Kyekpyoogan and Magayee plantations, and after examining the Forest on the higher part of the Kayoo choung, followed the Prome road to Thoongzai and thence struck northward through the Tharawaddie Division, inspecting *en route* the Queaymakeing teak plantation, the Mokka Beeling Reserve and Karen "toungya" plantations the Boben choungwa plantation, the Thitcho Reserve, and examining also the Upper Momonyo and Padinben Forests, Kudinzouk Forest and northern part of Bwet choung Reserve.

The route thence taken was viâ Shaboung, Toungamouk, and the sources of the Padetmyoung into the Mahathaman district, and by Letkyee northwards to the Middle Naweng, striking that stream at Wetto near Poukhoung.

More northward, the Gwaycho Reserve was examined and thence the valley of the North Naweng was followed eastward as far as Kanjin, whence proceeding north to Htoobouk on the Pudday choung, the Inspector General's party struck northeast to Htendaw, and eastward through the Choungoungyee Forest.

The Pegu Yoma was crossed at the sources of the Choungoungyee and Tsapyn streams, and the Zadeebong spur followed eastward into the Swah district, Sittang Division.

From the junction of the Loonyan and Tsapyn streams, a north-easterly route was taken across the Theing watershed into the Yeanai sub-division, and thence into the Myolha district, by the sources of the Bamboong a feeder of the Gnakyat choung.

Proceeding north, the Inspector General examined the teak tracts in the Sinthaygalay, Thinganneenoung, Myolhagyee, Maizellee-en, and Gway choungs, and crossing the Sittang River at Kekkoo Tsaik, inspected successively the Bimbyai, Gwaythai, and Karen choung or north Kannee Forest, and finally visiting the Tsamoh Forest on the west side, reached Toungoo on the 14th February.

The Allaibai, Laidoogwai, and Htone kyouk choung sub-divisions of the Kannee Forest, were inspected by the Conservator between the 27th February and 5th March 1873.

On the completion of the cases in the Toungoo district Court the Inspector General accompanied by the Conservator proceeded on 23rd April by the Sittang river and Kyatsoo creek to Rangoon and arrived there on the 29th April 1873

277. *Free grants of timber.*—During the year free grants of teak timber were made to the following extent in accordance with Schedule VI, Forest Rules.

	Logs.	Pieces.
Tharawaddie	12 ...	9
Rangoon	29 ...	0
Sittang	61 ...	0
Prome	63 ...	0
Salween	138 ...	0
Total ...	303	9

The teak timber granted in the Salween Division includes 30 logs of "sea-shore waif" which the grantees purchased at a nominal price.

178. *Timber for Public Works Department.*—In the Tharawaddie and Rangoon Divisions, 1,877 tons of teak timber and 21 logs of iron-wood "Pynkadoe" (*Xylia Dolabriformis*) were supplied during the rains to the Department Public Works, at the crossings of various streams on the Prome road.

179. *Timber for Cape of Good Hope Government.*—Towards the close of the year arrangements were made for squaring 370 tons first class teak timber selected from the Government timber depôt for shipment to Cape Town to meet a requisition from the Department Public Works; 1½ ton of teak planks were also prepared for shipment as "beam fillings" by same opportunity.

180. *Experiments with timber.*—A portion of the teak timber referred to in para. 207 of previous year's Administration Report as felled green in the Shaboung Forest, Tharawaddie Division in 1871, was launched during the rains, but remained neaped at the mouth of the Shwèlai Stream. Experiments will be made to test the breaking weight of this timber and that girdled at the same time in the same locality after both have equally seasoned.

181. *Woods of other kinds.*—Arrangements were made during the year for seasoning and bringing down to the market 40 Pine logs *Pinus massoniana* from the Thoungyeen Forest with the view of ascertaining whether a demand will spring up for mast pieces of this variety. Several such mast pieces were brought down to Moulmein as far back as 1840, but with no particular results, although favorably reported upon, as mentioned in Dr. Falconer's report on the teak Forests of the Tenasserim Province, page 96.

Some sample pieces of Thinwin *Pongamia glabra* resembling the Rose-wood of Southern India, have been sent for trial to Cabinet-makers in Calcutta, and Madras, and large sections are about to be forwarded to Europe.

Some "Kulamet" wood (*cordia* sp.) remarkable for its fragrance is also in course of extraction from the Tharawddie Forests.

Sample shipments of "Thitkadoe" *Cedrela toona* and "Thitka" *Pēntăcē Burmanica* Kurz, supplied by this Department have been sent to England by merchants at Moulmein who are also reported to have despatched samples of Thingan (*Hopea Odorata*), Padouk (*Pterocarpus dalbergioides*) and Anan (*Anneslea fragrans*, Wall).

182. *Forest Flora of Burma.*—During the year it was hoped that the preparation of the work entitled the "Forest Flora" of British Burma would have been completed by Mr. Kurz, Curator of the Herbarium, Royal Botanic Gardens, Calcutta who was specially deputed to this Province in 1868, and again in 1870 for the above purpose.

The magnitude of the work combined with the time involved in preparation of the requisite drawings will probably account for the delay.

Such a work in the hands of the Officers of this Department, will meet a desideratum long felt by every one interested in the Forest Flora of the country, as it is believed that Mr. Kurz's identification will remove the doubts which have been entertained regarding the classification hitherto attempted.

183. *Teak seed.*—During the year, a considerable quantity of teak seed 315 baskets, was collected and dispatched in accordance with requisitions from the following Officers :—

	Maunds.
Chief Commissioner, Port Blair	5
Superintendent Botanic Gardens, Calcutta	20
Conservator of Forests, Bengal	10
Chief Commissioner, Cooch Behar	50
Commissioner, Arakan...	10
Assistant Conservator of Forests, Chittagong	10
Total Maunds...	105

184. *General working of the Department.*—During the year an unusual amount of work devolved upon the Department by reason of the irregularities in the Sittang Division, which necessitated the withdrawal of two Assistant Conservators and two Forest Rangers from other Divisions, and increased very considerably the work at the Revenue stations and office of control at Rangoon.

Messrs. Daly, Nepean, and Rind, Assistant Conservators, and Mr. Stratford, Sub-Assistant Conservator successively suffered in health from exposure in the Forests during the latter part of the rains, and in the dry season.

The heat and exposure during the dry season, an unusually protracted one, also affected the health of Messrs. Stratford and Hough, and Assistant Conservator Moung Poh O, the latter being laid up for some time with fever.

Of the junior officers, Messrs. Dansey and Popert were retained chiefly at the Head Quarter stations to give them greater facilities for the study of the language.

185. *Condition of the lower grades.*—The subordinate grades have also had several of their number incapacitated at times for work by reason of fever, but it may be said that fever is generally so prevalent that natives rarely enjoy immunity from its attacks for two seasons successively, a matter which is not to be wondered at, when the exposure alternately in a parching hot season, and one characterized by days and days of heavy rain is considered.

Any one sceptical on this point will need but one trial trip into the Forests during the hot season, and again in the monsoon, to convince him that the work of the Forest Department in this Province involves no ordinary amount of physical strain and exposure of an exceptional nature.

The uniform with which the lower grades, such as Foresters, are supplied, consists simply of a cloth tunic ; but in the matter of clothing these men are generally better off than many of the people working in the Forests; but with the distances to be traversed through heavy Forest, poor diet, and difficulty of obtaining good shelter at every point visited, it will not be wondered at, that they suffer from fever.

An improvement, may doubtless, be expected as the Forests are demarcated, and laid out into regular beats provided with suitable rest houses at certain distances, as is being done on the lines of communication to and from the Reserved Tracts.

Progress in Forest demarcation will also necessitate an amelioration of the condition of the lower grades of subordinates, and the time has in fact arrived for a recast of the entire scale of establishment the object of which will be not only to increase its strength, but also to enhance the pay of the lower subordinates with a view to securing a more reliable class of men equal to the additional responsibilities now devolving upon the Department.

As mentioned in previous year's Progress Reports, the subject has been under consideration some time, and definite proposals would have been already submitted had sufficient progress been made as would have enabled Divisional Officers to estimate with any degree of correctness the increase required in the strength of the protective establishment. There will be no difficulty in procuring men for the additional appointments from the people of the Forest districts, even though a course of preliminary instruction and training be insis-

ted upon in the case of some, as the Forest Department is generally a popular one with such people, particularly in Divisions, such as the Tharawaddie, in which the " direct " or " Government agency " system of working the Forests necessitates more direct and frequent dealings with the people on the part of the European Officers.

186. *Forest Rules.*—Nothing of particular interest indicative of any alteration in the general effects and bearing of the Forest Rules has occurred during the past year. The only rules which directly affect the people of the Province are those which relate to the protection of teak in the Forests.

In almost every part of the Province, the people thus affected form a very small percentage of the population, villages in or near the teak localities being both small and far apart.

In the Eastern Prome district, the teak localities extended formerly over the entire area of the lower hills, but as far back as 1868, were so injured by " toungya" cultivation and encroached upon by squatters as to lead the Conservator to relax Rule IX in the entire district west of the villages of Thekkaibyn, Kokchoung, Meedoo, Mûgieegoom, Quaymeedoo, Shwéloung and Nyoungwoon, as recorded in Administration Report for 1868-69, page 14.

Nothwithstanding this reduction in the area to be protected, subsequent experience demonstrates very clearly that the enforcement of Rule IX, wherever villages are somewhat numerous can only be successfully accomplished by having a larger subordinate establishment for inspection work and subjecting their work to systematic revision on the part of the European Officer and experienced Forest Rangers. More recently the area over which Rule IX has been enforced in the Prome district, has been still further reduced by the efforts of the Department being directed to the protection mainly of the areas selected and proposed for reservation. The results will, it is feared, be much the same; in fact, as has been foreseen all along, the object of Rule IX, viz., protection against " Ya" cultivation, can only be satisfactorily effected by entirely excluding cultivation from well-defined areas, such as will be the case when final demarcation takes place of all teak localities in need of protection.

During the year, it was reported by the Assistant Commissioner, Prome, that there was reason to believe that the emigration from the Prome district had been larger than that of the previous year, and in excess of the immigration from Upper Burma.

The area actually demarcated as State Forests in the Prome district is up to the present only 29 square miles, and hence it is not readily understood how, as has been suggested, the increase in emigration is attributable to Forest reservation.

The inquiries instituted by this Department only went to shew that the few " toungya" cultivators who were allowed to remain within the middle Choungzouk Reserves had elected to shift northward into the Thayetmyo District.

187. *Changes in the Executive Establishment.*—Mr. Gamble, Assistant Conservator, 3rd grade, was transferred to Bengal in Department of Agriculture, Revenue and Commerce, No. 770 F, dated 5th July 1872 and left Rangoon on the 16th August 1872.

Although but a short time in the Province, Mr. Gamble had made considerable progress in the study of the language, and in other respects also gave promise of becoming a very efficient officer.

The establishment was increased by the nomination of Assistant Conservators Messrs. Dansey and Popert, who arrived in Rangoon from Europe under covenant with the Secretary of State, the former on 20th and the latter on 28th December 1872.

Mr. W. C. Graham, Deputy Conservator, 2nd grade, was dismissed the service on the 12th October 1872, on receipt of the orders of the Government of India, contained in Department of Agriculture, Revenue and Commerce, No. 1156 dated 26th September 1872, referring to the irregularities discovered in the Sittang Division and charges affecting his character.

Mr. J. M. Slym, Deputy Conservator, was promoted to Deputy Conservator, 2nd grade, in Department of Agreiulture, Revenue and Commerce, No. 11 F., dated 3rd January 1873, and the establishment strengthened by the transfer of Mr. G. W. Strettell, Deputy Conservator, 3rd grade, from the Central Provinces in Department of Agriculture, Revenue and Commerce, No. 1165, dated 27th September 1872, who was posted on arrival to the charge of the Rangoon Division on 18th January 1873.

Towards the close of the year, Forest Ranger Tha Cho was dismissed by the Conservator, it having transpired in the inquiries at Toungoo, that this subordinate while temporarily attached to the Sittang Division, failed to report the receipt of large bribes by other subordinates from the employés of certain Permit-holders.

188. *Officers on leave.*—On the 28th May 1872, Mr. A. M. Buchanan, Assistant Conservator, 2nd grade, and Personal Assistant to Conservator, availed himself of three months privilege leave which was subsequently commuted to sick leave and extended beyond the close of the official year; during his absence Mr. J. K. Hume conducted the duties of the Central Office and Office of Personal Assistant, besides holding charge of the Rangoon Division for several months.

Messrs. Daly and Rind, Assistant Conservators 3rd grade, proceeded to India on privilege leave on 9th January and 20th April 1873; the former returned by the 27th March 1873.

189. *Divisional Officers.*—The Conservator has reason to be satisfied with the manner in which the control and general management of the several divisions have been attended to during the past year, with the exception of the Prome Division, from the charge of which it has been deemed necessary to remove Mr. Elsner as soon as Mr. Hume's services are available.

The control of the Central Office, and the arduous duties connected with the office of Personal Assistant during the protracted absence of the Conservator, were conducted in a very creditable manner by Mr. Hume.

W. J. SEATON, CAPTAIN,

Conservator of Forests,

British Burma.

STATEMENTS.

STATEMENT

FOREST DEPARTMENT,

Extract from the Forest Day Books of the Forest Department British Burma, 1872 *to* 1873 *being continuation of Statement I of Progress*

Name and number of Divisions.	Name of Forest Tracts.	Year of Survey.	By whom Surveyed.
	North Shoaylay.		
Tharrawaddie ..	Proposed Tracts for reservation..	1872-73..	Captain W. Douglas Deputy Conservator of Forests.. .. ..
	C. D. adjoining Daulay Reserves..	....	Do. do. ..
	Do. do. do.	....	Do. do. ..
	Do. between Yeatagone choung and Nayadwin and Lepangone cart tract	....	Do. do. ..
	Tract B North of Padet myoung Reserve	....	Do. do ..
	Do. do. do. do.	....	Do. do. ..
	Do. do. do. do.	....	Do. do. ..
	Total..		
	South Shoaylay.		
Do. ..	Tract E North east of Peinzeik along Toungnyo main water shed	....	Do. do. ..
	Do. continued..	....	Do. do. ..
	Tracts (E F) South west of Peinzeik..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Tract G Kyoukeetoung Forest	....	Do. do. ..
	Total..		
	Shaboung.		
	Between Shaboung and Bwet Reserves, Tract H	....	Do. do. ..
	Do. do. and Padingben Reserve	....	Do. do. ..
	Total..		
	Padingben.		
	Tract H from Padingben Reserve..	....	Do. do. ..
	Total..		
	Matoon.		
Prome..	Eingmah choung District..	....	Mr. A. L. Hough, Sub-Assistant Conservator of Forests .. .. ..
	Do. do.	....	Do. do. ..
	Do. Head waters..	....	Do. do. ..
	Yayway choung..	....	Do. do. ..
	Shingyoezay Headwaters	....	Do. do. ..
	Shinma Toung..	....	Do. do. ..
	Choungyeedwin choung	....	Do. do. ..
	Kokodin choung Headwaters	....	Do. do. ..
	Tsadong choung District..	....	Do. do. ..
	Kyouktaboh Forest	....	Do. do. ..
	Chinhnit choung Headwaters..	....	Do. do. ..
	Byan Toung		
	Chinhnit choung Headwaters..	....	Do. do. ..
	Tarokeben choung District..	....	Do. do. ..
Feeders of the Shoo choung.	Tin choung do.	....	Do. do. ..
	Tsadwin choung do.	...	Do do. ..
	Do. Headwaters..	....	Do. do. ..
	Quingyee choung Headwaters	....	Do. do. ..
	Sabadan choung..	....	Do. do. ..
	Between Sabadan and Limbangyee choungs	....	Do. do. ..
	Between Thayetchin and Kyoukee choungs..	....	Do. do. ..
	Do. and Shoo choungs near mouth of Kyoukee.. ..	....	Do. do. ..
	Kyat choung H. W	....	Do do. ..
	Woondwin do.	...	Do. do. ..
	Do. lower part..	....	Do. do. ..
	Hman choung District lower part H. W. of Kyouksoh and Gwaydouk choungs	....	Do. do. ..
	Between Hman and Paymyouk choungs..	..	Do. do ..
	Do. do.	....	Do. do. ..
	Hman choung H. W..	....	Do. do. ..
	Do. between Sagway and Gangoo choungs	....	Do. do. ..
Feeders of the Hlowa choung.	Paymyouk choung District H. W. of Kywotgyee and Kywotngai choungs	..	Do. do ..
	Tsanwin choung Paymyouk choung District	...	Do do. ..
	Theik choung do.	....	Do do. ..
	Kyat choung between Paymyouk and Hlowa H. W. of Yaybok and Doungthama choungs..	..	Do do. ..
	H. W. Doungdayar choung..	...	Do. do ..
	Nattoung choung District	...	Do. do. ..
	Between Kamaneing and Magyeegong choungs..	..	Do. do. ..
	Between Choungshay and Gyo choung H. W	...	Do. do. ..
	H. W. Kyuairchan Thayetchin and Ngapyin	....	Do. do. ..
	Carried over..	....	.. .. ..

I

BRITISH BURMA.

shewing the number of Teak trees and woods of other kinds counted from Report of Forest Administration British Burma, for 1872-73.

No. of Tract Surveyed.	TREES COUNTED IN THE SURVEY TRACTS.									AREA SURVEYED			Total of first three classes Teak trees on 100 acres	NUMBER OF TREES ON 100 ACRES.	
	TEAK.					CUTCH.		PYNKADOE.							
	I.	II.	III.	IV.	Girdled or Nathat.	Above 3 cubits.	Below 3 cubits.	Above 3 cubits.	Below 3 cubits.	Length of Tract Surveyed.	Width.	Area in Acres.		Cutch.	Pynkadoe.
1	18	33	94	324	..	30	100	60	..	16,400	100	37·6	335	345	159
2	8	18	49	157	..	4	30	11	..	6,000	..	13·7	548	248	80
3	5	10	30	95	..	5	30	49	..	5,700	..	13 0	346	269	376
4	0	18	4	30	..	20	..	7	..	8,000	..	7·0	314	285	100
8	4	17	80	131	..	41	369	3	..	8,700	..	20·0	505	2,050	15
9	13	7	66	42	..	14	126	21	..	5,600	..	13·0	661	1,076	161
10	6	10	87	68	..	50	450	8	..	7,000	..	16·0	643	3,125	50
..	54	113	410	847	..	164	1,105	159	..	52,400	100	120·3	486	1,057	941
11	11	5	11	90	..	7	40	4	..	8,700	100	19·9	135	235	20
12	14	3	14	92	..	7	10	7	..	3,800	..	8 7	344	187	77
13	11	3	8	25	..	60	100	8	..	7,000	..	16·0	137	1,000	50
14	20	14	60	52	..	18	162	21	..	6,500	..	14·9	626	1,200	140
15	17	23	46	18	..	13	17	43	..	4,000	..	9·0	955	333	477
..	73	48	139	272	..	105	329	83	..	30,000	100	68·5	439	591	152
5	60	27	50	62	..	65	200	50	..	4,000	100	9 0	1,522	2,040	555
6	40	29	43	202	..	20	180	90	..	8,000	..	18·3	622	1,111	500
..	100	56	93	264	..	85	380	140	..	12,000	100	27·3	1,072	2,025	527
7	54	133	53	168	..	14	80	180	..	8,600	100	20·0	1,150	470	900
..	54	133	53	168	..	14	80	180	..	8,600	100	20·0	1,150	470	900
1	12	10	27	41	6	..	..	..	..	3,460	100	7·9	610	..	..
2	..	..	..	..	..	..	..	..	..	6,300	..	14·6	..	..	..
3	26	43	58	67	4	..	..	..	..	3,900	..	8·9	1,400	..	..
4	21	27	40	172	1	..	..	..	..	12,300	..	28·2	350	..	..
5	6	13	18	19	3	..	..	..	..	8,450	..	19·3	170	..	..
6	3	6	12	39	..	..	..	..	..	3,150	..	7·2	290	..	..
7	3	8	6	18	2	..	..	..	..	3,300	..	7·5	240	..	..
8	10	17	26	62	8	..	..	..	..	9,450	..	21·6	250	..	..
9	43	52	65	167	14	..	..	..	..	8,240	..	18·9	875	..	..
10	0	10	17	40	..	..	..	..	..	6,680	..	15·3	177	..	..
11	18	28	23	73	4	..	..	..	..	4,020	..	9·2	775	..	..
12	35	53	56	110	34	..	..	..	..	11,630	..	26 7	540	..	..
13	22	23	13	96	12	..	..	..	..	7,100	..	16·2	290	..	..
14	3	3	..	11	3	..	..	..	..	900	..	2·0	233	..	..
15	12	17	61	91	3		..	..	..	8,650	..	19·8	450	..	..
16	29	62	82	143	4	.	..	..	..	7,000	..	16·2	1,000	..	.
17	1	1	5	46	..	..	..	..	..	650	..	1 4	500	..	..
18	5	5	21	80	3	.	..		..	2,400	..	5·5	563	..	..
19	8	2	15	39	..	..	..	.	..	3,230	..	7·4	270	..	..
20	17	9	33	24	..	..	..	..	..	5,200	..	11·9	500	..	..
21	6	4	3	18	..	..	..	..	..	3,650	..	8·3	156	..	..
22	18	20	49	33	1	..	.	.	.	4,050	..	9 0	1,033	..	..
23	..	..	1	2	..	..	76	..	..	3,580	..	8·2	12	926	..
24	20	53	55	134	2	..	21	..	..	8,380	..	19·2	666	109	..
25	10	23	58	31	4	.	..	..	..	6,380	..	14·6	623	..	..
26	19	17	32	4	..	..	..	.	..	3,610	..	8·3	819	..	..
27	18	14	13	6	2	..	..	..	..	4,330	..	9·9	451	..	..
28	40	28	64	30	1	..	..	..	..	8,360	..	19 2	687	..	..
29	1	11	36	20	12	..	9	..	..	4,400	..	10·1	475	90	..
30	13	6	5	17	..	..	..	..	..	2,700	..	6·1	395	..	..
31	1	11	37	26	4	2	61	..	..	4,130	..	9·4	521	670	..
32	2	6	3	16	..	..	196	..	.	4,300	..	9 9	110	1,979	..
33	..	..	..	8	..	..	38	..	..	1,920	..	4 4	..	863	..
34	5	20	40	3	5	..	4	..	.	3,850	..	8·7	747	50	..
35	2	11	22	16	3	..	.	..	.	3,320	..	7·5	465	..	..
36	3	8	46	53	3	8	90	..	.	5,440	..	10·1	548	865	..
37	8	10	34	85	3	2	6	..	.	5,680	..	13·0	400	61	..
38	28	30	52	24	..	..	..	..	..	15,100	.	36·9	300	..	..
..	458	667	1,123	1,854	141	12	501	..	..	209,280	100	458·4	472	147	..

STATEMENT

FOREST DEPARTMENT,

Extract from the Forest Day Books of the Forest Department British Burma, 1872 to 1873 being a continuation of Statement I of Progress

Name and number of Divisions.	Names of Forest Tracts.	Year of Survey.	By whom Surveyed.
	Brought forward..	..	..
	Matoon Continued.		
Prome Feeders of the Hlowa choung.	H. W. of Hlowa choung above choukmatha	1872-73.	Mr. A. L. Hough, Sub-Assistant Conservator of Forests.. .. ..
	Do. Kwaysin and Sabbagyee choung	....	Do. do. ..
	Do. Mayau, Kyoukuet and H. W. Sanwin choungs..	....	Do. do. ..
	Between do and Taba choung	....	Do. do. ..
	Do. Taba and Thityar do.	....	Do. do. ..
	Pyoung choung District	....	Do. do. ..
	Do. Padin choung..	....	Do. do. ..
	Yeen choung District..	....	Do. do. ..
	Do. Modee and Daga choungs	....	Do. do. ..
	Do. Gnat and Matoon choungs..	....	Do. do. ..
	Do. Zagoo and Gnatdo..	....	Do. do. ..
	Slopes of Zagoo below mouth of Mayong..	....	Do. do. ..
	Between Mayong, Zagoo and Matoong choungs	....	Do. do. ..
	Southern slopes of Matoon at Namau Ein..	....	Do. do. ..
	Northern do at Pay Ein	....	Do. do. ..
	Between Matoon and Pathee choungs	....	Do. do. ..
	Do and Pazin..	....	Do. do. ..
Feeders of the Matoon choung.	Lower part of Pazin..	....	Do. do. ..
	Do. of Pyet and H. W. of Pyet Poungoo, Kaydine and Kyan choungs..	....	Do. do. ..
	Kyan choungbiar	....	Do. do. ..
	Between Zaugyee and Woongong choungs	....	Do. do. ..
	Do. Woongong and Thoaychouk..	....	Do. do. ..
	Do. Thoaychouk Poungloung Kyoukhuet and Moo choungs..	....	Do. do. ..
	Do. Moo and Thadoon choungs	....	Do. do. ..
	Do. Thadoon, Panee and Eingmah choungs (Wetpyit choungbiar)	....	Do. do. ..
	Panee choung District or (Ginyair and Seeboung choungs) ..	....	Do. do. ..
	Panee E from Meebouk	....	Do. do. ..
	Panee W. between Kyathouk Woonbeing and Kyoukron choungs	....	Do. do. ..
	Eingmah choung District from Seingtoo..	....	Do. do. ..
	Thayetsan Kior H. W. Kengyee, Mokeswair and Kyouksair choung..	....	Do. do. ..
	Between Thayetsan Kior and Matoon choung	....	Do. do. ..
	Lepwah choung District W. side	....	Do. do. ..
	Between Lepwah and Peeneing choungs	....	Do. do. ..
	Total..		
	Mudday.		
Head waters of Mudday choung.	Touksha choung (Meiksalingong Forest) feeder of Gnawet Choung..	....	Do. do. ..
	Gnawet choung Northern bank and Southern side through Ginyair and Shoay chan choungbiar	....	Do. do. ..
	Between Tsee and Chinzay choungs	....	Do. do. ..
	Chinzay choung upper part..	....	Do. do. ..
	Between Kyar and Kyoukpyoke choungs..	....	Do. do. ..
	Mudday Choung North Bank (Boodoung)..	....	Do. do. ..
	Between Linzet and Katthay choungs and Western side of side of Katthay choung	....	Do. do. ..
	Between Koon and Okeaw choungs	....	Do. do. ..
	Do. Peelah Choung and Mudday choung..	....	Do. do. ..
	Do. Peelah Choung and Khayouk choung	....	Do. do. ..
	Do. Khayouk and Mudday choungs	....	Do. do. ..
	Do. do. do.	....	Do. do. ..
	Do. Kalabong and Myoung choungs Northern feeders of the Khayouk choung	....	Do. do. ..
	Total..		
	Shoaylanga.		
Kyouk-hpyoo Bhoo-yuh choung. Thanee choung.	Headwaters of the Thaman choung..	....	Do. do. ..
	Headwaters of Payben Myoukloke and Youngoe choungs (the two former are feeders of the Thaman choung)..	....	Do. do. ..
	Between Bongoung and Thekkapoung choungs	....	Do. do. ..
	Do Thekkapoung and Kyoukhlayga choungs.. ..	....	Do. do. ..
	Do Youngbin and Thanee choungs..	....	Do. do. ..
	Do. Eingwoon and Thanee choungs..	....	Do. do. ..
	Do. Thanee, Thabongee and Thabone-ngai choungs.. ..	....	Do. do. ..
	Do. Thabone-ngai and Phalan choungs	....	Do. do. ..
	Do. Atet Kin and Shoay choungs	....	Do. do. ..
	Do. Shoay and Pwot choungs	....	Do. do. ..
	Do. Pwot and Kyar choungs	....	Do. do. ..
	Do. Ngayanpoke and Thayet choungs	....	Do. do. ..
	Do Letkpoke and Thapan choungs..	....	Do. do. ..
	Thapan choung District Head waters	....	Do. do. ..
	Head waters of Gangoo and Keebin choungs	....	Do. do. ..
	Head waters of the Phalan choung..	....	Do. do. ..
	Total..	....	.. ..

I.—*(Continued.)*

BRITISH BURMA.

shewing the number of Teak trees and woods of other kinds counted from Report of Forest Administration British Burma for 1872-73.

No. of Tract Surveyed.	Trees counted in the survey tracts.									Area surveyed.			Total of first three classes of teak on 100 acres.	Number of trees on 100 acres.	
	Teak.					Cutch.		Pynkadoe.							
	I.	II.	III.	IV.	Girdled or Nathat.	Above 3 cubits.	Below 3 cubits.	Above 3 cubits.	Below 3 cubits.	Length of Tract surveyed.	Width.	Area in Acres.		Cutch.	Pynkadoe.
..	458	667	1,123	1,854	141	12	501	..	..	209,283	100	458·4	472	147	..
39	63	27	156	60	..	..	..	..	..	22,050	100	50·6	486	..	..
40	43	13	11	29	3	..	..	..	..	16,800	..	38·5	200	..	..
41	16	19	15	15	2	..	..	..	..	11,800	..	27·0	185	..	..
42	39	43	32	24	5	..	7	..	..	12,500	..	28·9	393	25	..
43	11	11	54	47	1	..	..	..	..	8,900	..	20·4	372	..	..
44	7	25	98	57	3	..	51	..	..	17,400	..	39·9	326	127	..
45	..	3	70	..	..	..	26	..	..	3,700	..	8·6	849	302	..
46	14	8	75	150	3	..	..	..	..	10,850	..	24·5	396	..	..
47	2	6	36	10	..	..	..	..	..	18,350	..	42·1	104	..	..
48	1	11	25	15	..	..	..	..	..	5,550	..	12·7	201	..	..
49	1	4	36	19	..	..	..	..	..	12,450	..	28·9	142	..	..
50	7	7	23	10	..	..	..	..	..	5,950	..	13·6	272	..	..
51	25	48	180	112	..	..	..	..	..	35,300	..	81·0	312	..	..
52	14	28	92	40	..	..	..	..	..	9,350	..	21·4	640	..	..
53	24	31	32	40	3	..	..	..	..	9,900	..	22·6	385	..	..
54	3	4	5	12	..	..	..	..	..	7,300	..	16·7	71	..	..
55	18	33	233	120	6	..	..	..	..	25,600	..	58·5	408	..	..
56	3	6	1	12	..	..	32	..	..	7,900	..	17·1	58	..	..
57	36	61	182	240	12	..	148	..	..	26,450	..	60·3	462	50	..
58	1	..	75	40	1	..	282	..	..	3,200	..	7·3	104	2,027	..
59	5	15	40	36	4	..	140	..	..	10,650	..	24·4	245	1,159	..
60	54	88	62	43	32	1	295	..	..	18,450	..	42·3	485	330	..
61	3	8	41	65	5	3	245	..	..	15,100	..	34·6	150	861	..
62	43	43	106	174	26	5	167	..	..	..	..	..	..	..	..
63	23	18	122	159	81	9	210	..	..	20,700	..	47·5	343	351	..
64	15	26	208	49	15	..	12	..	..	18,750	..	42·9	582	510	..
65	2	..	7	1	..	..	19	..	..	2,300	..	5·2	173	230	..
66	5	17	135	35	..	2	113	..	..	12,700	..	29·1	539	67	..
67	26	20	34	39	5	..	65	..	..	15,900	..	36·4	219	315	..
68	63	58	95	75	22	5	136	..	..	21,450	..	49·2	435	182	..
69	7	11	53	44	2	1	34	..	..	9,750	..	22·3	318	632	..
70	23	38	45	37	8	4	188	..	..	8,150	..	18·7	566	133	..
71	32	99	32	65	21	..	59	..	..	7,350	..	16·8	1,000	1,142	..
..	1,087	1,496	3,595	3,728	401	42	2,730	..	..	641,830	100	1,448·4	471	258	..
72	10	7	19	30	3	..	6	..	..	6,850	100	15·7	229	375	..
73	8	13	103	43	3	..	6	..	..	10,800	..	24·7	502	25	..
74	4	4	28	35	2	..	.	..	..	15,900	..	36·3	99	..	..
75	..	..	2	..	..	..	..	..	..	1,300	..	2·9	68	..	..
76	..	..	4	10	..	..	..	..	..	3,800	..	8·7	46	..	..
77	1	..	4	3	..	..	..	..	..	900	..	2·0	250	..	..
78	28	26	100	42	..	..	..	..	..	14,750	..	33·8	456	..	..
79	4	1	14	15	1	..	..	..	..	15,200	..	34·8	54	..	..
80	..	..	1	1	..	..	..	..	..	13,900	..	31·9	..	..	..
81	11	4	38	20	..	..	..	..	..	4,400	..	10·1	524	..	..
82	8	1	10	..	2	..	..	..	..	8,050	..	18·4	103	..	..
83	2	..	5	..	1	..	..	..	..	2,750	..	6·3	111	..	..
84	6	1	38	39	3	..	..	..	..	8,900	..	20·4	220	..	..
..	82	57	366	238	15	..	65	..	..	107,500	100	246·0	221	22	..
85	27	7	62	49	..	1	89	..	..	24,100	100	55·3	173	162	..
86	2	1	46	42	4	..	112	..	..	11,750	..	26·9	182	412	..
87	1	1	49	126	..	..	..	..	..	10,900	..	25·0	204	..	..
88	7	..	73	171	..	..	..	..	..	16,000	..	36·7	217	..	..
89	4	2	75	175	..	..	..	..	..	10,350	..	23·7	341	..	..
90	11	3	45	59	..	..	..	..	..	5,800	..	13·3	443	..	..
91	2	..	279	178	..	..	..	..	..	13,800	..	31·6	889	..	..
92	1	.	17	26	..	..	..	..	..	4,850	..	11·1	162	..	..
93	5	2	54	158	..	..	..	..	..	14,000	..	32·1	190	..	..
94	9	..	75	22	6	..	..	..	..	13,200	..	30·3	276	..	..
95	7	2	46	17	5	..	..	..	..	23,200	..	53·2	103	..	..
96	34	2	114	82	9	..	..	..	..	25,100	..	59·9	250	..	..
97	1	..	15	..	..	..	..	..	..	4,700	..	10·7	149	..	..
98	15	1	73	74	4	..	..	..	..	10,750	..	24·9	357	..	..
99	11	2	105	58	3	..	..	..	..	16,600	..	38·1	312	..	..
100	7	3	86	125	7	..	..	..	..	15,500	..	35·7	266	..	..
..	144	26	1,214	1,362	38	1	201	..	..	220,600	100	508·5	283	35	..

STATEMENT

FOREST DEPARTMENT,

Extract from the Forest Day Books of the Forest Department British Burma, 1872 to 1873 being a continuation of Statement I of Progress

Name and number of Divisions.	Name of Forest Tracts.	Year of Survey.	By whom Surveyed.
	Kannee Forest.		
Sittang	Kyathoung choung feeders of Laidoogwai choung	1872-73.	Moung PohO, Assistant Conservator of Forests .. ..
	From Laidoogwai along the spur of hill..	....	Do. do. ..
	Between Kyathoung choung and its feeders	....	Do. do. ..
	Do. Htowah choung and feeders of Kyathoung	....	Do. do. ..
	Along the Laidoogwai Kior..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Along Htwah and Kyathoung Kiordan	....	Do. do. ..
	Along the spur down to Kyathoung choung	....	Do. do. ..
	The E junction of Alaibai and Kannee choung	....	Do. do. ..
	From Alaibaigalay to Alaibaikyee choung..	....	Do. do. ..
	On South bank of Laidoogwai Kior..	....	Do. do. ..
	Between Kannee and Laidoo choungs..	....	Do. do. ..
	Thingan choungbiar Forest..	....	Do. do. ..
	From Thingan to Gunyanbya..	....	Do. do. ..
	Along the Gnoeyoumbyoo choungbiar	....	Do. do. ..
	Along Matthee choung to Taikaloung	....	Do. do. ..
	Back from Taikaloung to Matthee choung..	....	Do. do. ..
	From Toung Choung to Htokea choung..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Source of Htowah choung on high road..	....	Do. do. ..
	Source of Kayin choung	....	Do. do. ..
	Do. do	....	Do. do. ..
	Kayin choungbiar Forest	....	Do. do. ..
	Tongyouk do.	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Laidoogwai choungbiar Forest	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Cheebahdoung Forests	....	Do. do. ..
	Tongyouk Forests..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Kyin choung Forests	....	Do. do. ..
	Tongyouk Forests	....	Do. do. ..
	From Yallway to Gyo choung..	....	Do. do. ..
	Gyo choungbiar Forests	....	Do. do. ..
	Tongyouk Forests	....	Do. do. ..
	Tongyouk choung and Gyochoung Forests	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Tongyouk choung Forests	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Kyouksaikloo Forests..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Poungdoungkior Forests	....	Do. do. ..
	Along W. bank of Bembong choung..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Kyouksaikloo Forests..	....	Do. do. ..
	From Bambong to Kyouk Oh choung	....	Do. do. ..
	From Kyouk Oh to Thitnatthat choung..	....	Do. do. ..
	Sannyoung Forest	....	Do. do. ..
	Poungdoung or Oodoo Forests.	....	Do. do. ..
	Laikabar Forests	....	Do. do. ..
	Kyouk Oh do.	....	Do. do. ..
	Poungdoung Forest..	....	Do. do. ..
	Kyatween Hlaimong Forest..	....	Do. do. ..
	Bambong Forest..	....	Do. do. ..
	Bambongalay Forest..	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Total..	....	....
	Koonoung Forest.		
	Peintheelah choungbiar Forests	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Natthathoung Forest..	....	Do. do. ..
	Gnayokekoung Forest..	....	Do. do. ..
	Peintheelah choung Forest..	....	Do. do. ..
	Total..	....	....
	Bimbyai Forest.		
	Mee Ee choung..	....	Do. do. ..
	Do.	....	Do. do. ..
	Bimbyai choung North bank..	....	Do. do. ..
	Do. do. (Poing choung)	....	Do. do. ..
	Do. do. (Poing choungbiar)..	....	Do. do. ..
	Carried over..	....	....

I.—*(Continued.)*

BRITISH BURMA.

shewing the number of Teak trees and woods of other kinds counted from Report of Forest Administration British Burma for 1872-73.

Number of Tract Surveyed.	TREES COUNTED IN THE SURVEY TRACTS.					AREA SURVEYED.			Total of first three classes teak trees on 100 Acres.
	TEAK.								
	I.	II	III.	IV.	Girdled or Natthat.	Length of Tract surveyed.	Width.	Area in Acres.	
1	7	3	1	9	3	3,500	100	4.0	275
2	2	2	8	5	2	3,300		3.78	318
3	28	4	17	6	7	6,200	.	7.11	619
4	32	4	10	2	1	7,500	..	8.6	534
5	31	21	17	26	8	6,300	..	7.2	972
6	16	7	6	7	1	2,600	.	2.9	1,000
7	19	17	10	..	6	3,600	..	4.1	1,122
8	17	7	8	4	5	4,400	..	5.0	640
9	13	15	41	311	11	6,100	..	7.0	985
10	9	12	54	130	12	5,200	..	5.7	1,315
11	10	3	3	4	..	5,000	..	5.7	386
12	33	15	12	30	5	9,900	..	11.3	531
13	15	4	3	15	2	3,700	..	4 2	528
14	18	4	3	30	..	8,900	..	9 0	277
15	9	6	8	20	..	2,200	..	2.5	920
16	16	4	18	100	2	2,600	..	2.9	1,310
17	9	6	17	130	1	3,700	..	4.2	762
18	29	1	6	20	1	3,500	.	4.0	900
19	6	2	4	5	..	1,000	..	1.1	1,099
20	32	54	10	480	3	2,900	..	2.8	3,428
21	41	24	15	21	6	4,200	..	4.8	1,666
22	20	32	10	55	1	4,000	..	4.4	1,409
23	10	48	47	58	7	6,500	.	7.4	1,419
24	8	8	28	100	1	3,100	..	3.5	971
25	8	3	3	15	..	2,800	..	3.2	437
26	31	16	2	8	..	4,700	..	5.3	920
27	16	7	6	30	1	2,000	..	2.0	1,450
28	33	14	10	20	2	3,200	..	3.6	1,583
29	26	20	33	108	6	6,000	.	6.8	1,161
30	5	5	12	20	1	3,900	.	4.4	500
31	25	27	76	38	4	6,000		6.8	1,882
32	21	16	41	108	1	5,400	..	6.2	1,257
33	15	16	51	220	3	15,800	.	18.1	453
34	12	8	60	35	..	33,000	.	3.7	2,102
35	10	40	187	110	7	75,000		8.3	2,855
36	9	4	6	10	..	24,000		2.7	700
37	11	10	29	29	1	81,000	.	9 2	543
38	12	..	6	4	..	46,000		5.2	384
39	14	18	23	230	2	12,200	..	14.0	392
40	3	3	2	15	..	48,000	..	5.5	145
41	6	8	12	13	2	4,900	..	4.4	590
42	15	6	12	10	..	10,000	..	11.1	297
43	8	1	..	15	..	6,300	..	7.2	125
44	9	6	19	30	..	8,400	..	9.7	350
45	13	23	16	15	..	6,200	..	7.1	732
46	1	7	11	..	..	3,900	..	4.4	1,431
47-8-9	6	24	14	10	1	11,300	..	12.7	207
50	1	2	14	10	..	8,000	..	9.1	186
51	1	3	33	40	.	8,700	..	10.2	362
52-3-4	21	21	24	53	15	15,000	..	17.2	383
55	18	27	37	13	4	6,300	..	7.2	1,139
56-7-8	12	15	16	41	23	13,700	..	15.6	275
59-60	6	10	6	25	7	10,500	..	12.0	183
61	20	35	44	7	2	5,000	..	5.7	1,894
62	20	11	16	35	1	5,400	..	6.4	734
63	18	10	33	27	2	10,000	..	11.4	535
64	22	21	22	15	..	5,500	..	6.5	1,000
65	6	7	7	23	6	34,000	..	3.9	513
..	894	747	1,239	3,040	176	649,100	100	389 99	787
1	31	4	12	13	..	26,000	100	2.9	1,620
2	55	43	15	..	..	24,000	..	2.7	418
3	3	1	5	17	..	2,000	..	2.2	400
4	40	24	44	38	5	10,000	..	11.4	947
5	3	3	3	7	..	10,000	..	1 8	500
6-7	39	11	218	586	..	13,300	..	13.2	2,030
..	171	86	297	661	5	91;300	100	34·2	846
1	95	9	17	53	53	10,100	100	11.5	1,052
2	96	30	28	230	16	10,400	..	11.9	1,294
3	48	3	4	60	2	5,900	..	6.7	821
4	31	6	14	203	..	4,200	..	4.8	1,062
5	23	4	12	174	2	3,600	..	4.1	951
..	293	52	75	720	73	34,200	100	39·0	1,036

STATEMENT

FOREST DEPARTMENT,

Extract from the Forest Day Books of the Forest Departmet British Burma, 1872 *to* 1873 *being a continuation of Statement I of Progress*

Name and number of Divisions	Name of Forest Tracts.	Year of Survey.	By whom Surveyed.
	Brought forward..	..	.. .. ..
	Bimbyai Forest—(Concluded)		
Sittang .. .	Bimbyai to Yayboo to Gyo choung.. .. :	1872-73.	Moung PohO, Assistant Conservator of Forests.. .. .. ..
	Do. Yunygong t Okshitpin Sakan	....	Do. do. ..
	Do. Okshitpin to Thitpokbin Sakan..	....	Do. do ..
	Do Thitpokbin back to Yunygong..	....	Do. do. ..
	Bimbyai Southbank Phayai choung.	....	Do. do. ..
	Do do. Mee Ee choungwah..	....	Do do. ..
	Mee Eganlay choung	....	Do. do. ..
	Phayai choung..	....	Do do. ..
	Do.	....	Do do. ..
	Gyo choung Forest	....	Do. do. ..
	Laldagyee Eng (Thaiwah)	....	Do. do. ..
	Do. do.	....	Do. do. ..
	Bimbyai Gyo choungwah to Thaiwah choungwah	....	Do do. ..
	Along Payetsoay kior daw	....	Do. do. ..
	Tinwahmyoung North bank..	....	Do. do. ..
	Do South bank	....	Do. do. ..
	Pyahsoay to Payetsoay Kadin	....	Do. do. ..
	Payetsoay to Okshitpin Sakan	....	Do. do. ..
	Okshitpin Sakan to Zayetinyoungwoh	....	Do do. ..
	Zayetmyoung (source to mouth)	....	Do. do. ..
	Saloopouk to near Myaben Sakan	....	Do. do. ..
	Okshitpin sakan to Gyo choung	....	Do do. ..
	Gyo choung to Yinthai choung	....	Do. do. ..
	Yinthai choung North bank S. W	....	Do. do. ..
	Do. South bank N E.	....	Do. do. ..
	To source of choung from Mahoo road	....	Do do. ..
	Back to Mahoo road by South bank	....	Do. do. ..
	Total..	..	.. ..

1.—*(Concluded.)*

BRITISH BURMA.

shewing the number of Teak trees and woods of other kinds counted from Report of Forest Administrations British Burma for 1872-73.

Number of Tract Surveyed.	TREES COUNTED IN THE SURVEY TRACTS.					AREA SURVEYED			Total of first three classes teak trees on 100 Acres.
	TEAK.								
	I.	II.	III.	IV.	Girdled or Natthat.	Length of Tract surveyed.	Width.	Area in Acres.	
..	293	52	75	720	73	84,200	100	39.0	1,036
6	64	12	13	75	4	5,700	100	6.5	1,369
7	69	9	10	18	,,	4,200	..	4.8	1,854
8	43	11	6	49	3	4,300	..	4.9	1,224
9	90	18	28	145	23	9,200	..	10.5	1,295
10	20	9	12	88	6	5,700	..	6.5	631
11	6	,,	7	40	2	2,200	..	2.5	550
12	61	5	11	56	2	4,500	..	5.6	1,375
13	39	11	16	167	14	7,700	..	8.8	750
14	4	1	4	130	5	3,000	..	3.4	226
15-16-17	43	12	28	271	10	14,300	..	16.3	533
18	31	5	17	86	9	4,700	..	5.3	1,000
19	45	12	8	180	27	12,800	..	14.6	415
20	30	23	16	77	6	5,000	..	5.7	1,139
21	14	3	6	48	2	21,000	..	2.7	815
22	21	1	15	25	4	39,000	..	4.4	841
23	28	10	6	32	4	5,000	..	5.7	772
24	44	10	30	115	3	8,000	..	9.1	1,022
25	52	27	31	105	1	8,400	..	9.7	1,134
26	68	13	42	52	1	5,000	..	5.7	2,158
27	6	8	21	15	,,	16,000	..	1.8	1,944
28	107	51	165	327	8	13,200	..	15.1	2,139
29	8	8	23	38	1	3,100	..	3.5	1,114
30	5	6	11	15	,,	4,500	..	5.1	431
31	114	21	67	217	,,	11,000	..	12.6	1,603
32	91	24	93	125	6	14,000	..	16.0	1,300
33	8	5	4	30	3	13,000	..	1.4	1,214
34	13	7	4	16	1	12,000	..	1.3	1,849
..	1,417	383	768	3,262	218	293,700	100	228.5	1,047

STATEMENT

FOREST DEPARTMENT,

Extract from the Forest Day Book of the Divisional Officer producing tracts of the Mudday, Min-

Name of Forest Tracts	Year of Survey		No. of Survey.	Area of Tract Surveyed.	Trees counted in the Teak.				
				Acres.	5 feet.	3 cubits.	1 and 2 cubits.	Small.	Total.
Mudday District.		Mr. F. Y. Elsner, Assistant Conservator of Forests..							
East of Alay choung to Shoaytanga W. S.	1872-73.		1	83.0	....	26	110	92	228
Along Shoaytanga W. S to source of Myoukloke.. ..	..	Do. ..	2	60.7	....	42	234	156	432
Do. west W. S. of Myoukloke to Pyoungdoung ..	..	Do. ..	3	75.4	....	31	95	71	197
From west W S. of Mongtha choung along the cart road Bauben to Mongtha	..	Do. ..	4	79.5	....	12	27	18	57
From Mongthayoua to source of Mongtha choung.. ..	..	Do. ..	5	50.8	3	14	126	201	344
From source to mouth of Mongtha along the E. watershed	..	Do. ..	6	39.3	7	56	170	106	339
Along the ridges encircling the Yaypok choung	..	Do. ..	7	75.9	....	69	190	455	714
Between Kogalay and Shoaykyoukpya choungs	..	Do. ..	8	65.5	....	46	262	331	639
Along south W. S. of Kogalay choung	..	Do. ..	9	43.7	14	14	118	305	451
From Myayneeyoua along the Gnatgyau	..	Do. ..	10	78.2	....	79	266	402	747
Total..	..	....	....	652.4	24	389	1,598	2,137	4,148
Mindoon District.									
From Mongthayoua to Chitneeyoua	..	Do. ..	11	63.9	2	32	191	332	557
Do. Chitneeyoua to Payagyee (Payagyee choung) ..	..	Do. ..	12	51 7	2	6	98	144	250
Do. Payagyee to Kabein (do.) ..	..	Do. ..	13	64.4	....	....	78	296	374
Do. Meengwin to Woondwin (Shee choung)	..	Do. ..	14	18.1	....	15	64	107	186
Do. Woondwin to Toungyoh (Paymyouk choung) ..	..	Do. ..	15	57.7	....	....	402	398	800
Do. Kamoeneing to Taray choung (Mindoon choung) ..	..	Do. ..	16	72.6	....	15	145	290	450
Do. A long the East W. S. of Thwaysouk (Moo choung)	..	Do. ..	17	63.7	....	95	267	503	865
Do. Himongwah to Sengyau (Moo choung E.)	..	Do. ..	18	60.9	....	6	293	439	748
Do. Sengyau to Thadoon (do.)	..	Do. ..	19	51.7	....	42	321	258	621
Do. Thadoon choung to Sangyee (do.)	..	Do. ..	20	51.2	....	16	277	164	457
Do. Mouth of Thitchay choung to Yaygyaneing (Eingmah choung)	..	Do. ..	21	50.6	....	36	117	127	280
Do. Mouth of Alay choung to Tapaneing (Pance choung)	..	Do. ..	22	27.3	....	11	99	88	198
Total..	..	....	..	683.8	4	274	2,447	3,056	5,781
Minday District.									
From Shitpengyau to Minday	..	Do. ..	23	24.8	....	....	....	....	....
Do. Htongtoung to Padoh (Irrawaddie)	..	Do. ..	24	77.5	....	....	357	248	605
Between Gyongyonkya choung and Tamadan (do.) ..	..	Do. ..	25	6.9	....	....	48	37	85
Total..	..	.. .. ..		109.2	..	....	405	285	690

Note.—W. S. implies Water-shed.

1 A.

BRITISH BURMA.

Prome, shewing the result of his valuation Surveys in the cutch doon and Minday Districts in 1872-73.

SURVEY TRACTS.					NUMBER OF TREES ON 100 ACRES.									
CUTCH.					TEAK.					CUTCH				
3 cubits.	2 cubits.	Small.	Stumps.	Total.	5 feet.	3 cubits.	1 and 2 cubits.	Small.	Total.	3 cubits.	2 cubits.	Small.	Stumps.	Total
....	33	252	1,259	1,544	....	30	130	100	260	....	40	300	1,500	1,840
....	30	122	739	891	....	80	360	250	690	....	50	200	1,300	1,550
....	14	292	829	1,135	....	4	130	90	224	....	120	400	1,100	1,620
....	104	398	1,572	2,074	....	15	34	22	71	....	130	500	1,900	2,530
....	141	360	857	1,358	6	27	250	400	683	....	280	700	1,700	2,680
4	111	252	336	703	17	110	460	500	1,117	10	280	640	850	1,780
....	53	426	772	1,251	....	90	250	600	940	....	70	560	1,000	1,630
14	50	669	818	1,555	....	70	400	520	990	20	90	1,002	1,240	2,352
....	27	350	424	801	30	30	270	700	1,030	....	60	800	970	1,830
....	32	438	587	1,057	....	100	340	590	1,030	....	40	560	750	1,350
18	664	3,559	8,188	12,369	53	586	262	377	703	3	116	566	1,231	1,916
....	39	256	896	1,191	2	50	300	520	872	....	60	400	1,400	1,860
....	47	233	932	1,212	3	110	190	280	583	....	90	450	1,800	2,340
....	115	323	1,030	1,468	....	....	120	460	580	....	180	500	1,600	2,280
....	36	55	309	400	....	80	350	590	1,020	....	250	300	1,700	2,250
....	139	230	115	484	....	....	....	....	....	....	240	400	200	840
....	145	436	872	1,453	....	20	200	400	620	....	200	600	1,200	2,000
....	58	446	829	1,333	....	150	420	790	1,360	....	90	700	1,300	2,090
....	43	305	1,158	1,506	....	10	490	720	1,220	....	70	500	1,900	2,470
....	32	415	776	1,223	....	80	620	500	1,200	....	60	800	1,500	2,360
....	128	206	872	1,206	....	30	540	320	890	....	250	400	1,700	2,350
....	86	204	658	1,038	....	70	230	250	550	....	170	580	1,300	2,050
....	71	213	246	530	....	40	360	320	720	....	260	780	900	1,940
....	939	3,412	8,693	13,044	....	53	318	429	801	....	160	534	1,375	2,069
....	13	74	447	534	....	....	....	....	....	....	50	310	1,800	2,190
....	171	310	930	1,411	....	....	460	320	780	....	220	400	1,200	1,820
....	7	16	28	51	....	....	680	540	1,220	....	90	240	400	730
..	191	400	1,405	1,996	..	..	380	286	666	..	120	326	1,133	1,580

STATEMENT

FOREST DEPARTMENT,

Statement of Teak trees girdled and

Name and Number of Section.	Name of Revising Officer.	Forest.	Sub-District.
I.—Rangoon	L A W. Rind, Esq., Asst. Conservator of Forests.	Upper Zamayee ..	West of Wetsee choung .. ..
			North of Dahbyekkyee choung.. .. .. ..
			Between Meimmahshwin choung and Tsaulan choung.. ..
			Do. Mya Ah choung and Tsaulan choung .. .. ..
			Do. Thaymay choung and Kaynee choung.. .. ..
			Do. Kaynee, Kalah and Thaymay choungs.. .. ..
			Do. Kalah choung and Kyeegan choungs .. .. ..
			Thingan choung .. ..
			West of Thingan choung on bank of Thaymay choung.. ..
			Between Gouk choung and Kyeegan choung.. .. ..
			Do. Kalah choung, Gouk choung and Wetthay choung
			Do. Guadoungah choung and Kaynee choung.. ..
			Do. do. and Kalah choung.. .. ..
			Do. Manlan choung and Wetthay choung.. .. ..
			East of Thamay choung .. ..
			Between Kaynee choung and Kyet choung.. .. ..
			Do. Thaylauloo choung and Letkouk choung.. ..
			Do. Letkouk choung and Meimmahshwin choung.. ..
			Do. Laywahgalay choung and Thaylauloo choung.. ..
			Do. do. Thaylauloo choung and near Thaymay choung .. ..
			Do. Kyet choung and Thaymay choung.. .. ..
			Total Rangoon Division..
II.—Tharrawaddie.	Captain W. Douglas, Deputy Conservator of Forests.	Toungnyo and Pudinben.. ..	Pudinben Kyoukoh choung .. ..
			Pudinben Pa-lwea choung .. ..
			Gnakoo choung.. .. ..
			Mwaygyee Oo.. .. ..
			Gway choung.. .. ..
			Sinsway Gway choung .. ..
			Myojah choung .. ..
			Yeadwin choung .. ..
Do. ..	Mr. G Stratford, Sub-Assistant Conservator of Forests.	Toung..	Toukkyan choung .. ..
			Meethway choung .. ..
			Wetchan choung .. ..
			Natyeadwin and above Thayet Kyouk Myoung .. ..
			Laymyoung choung.. .. ..
			Okshitpon choung.. .. ..
			Total Tharrawaddie Division..
III.—Prome.. ..	Mr. F Y. Elsner, Assistant Conservator of Forests.	North Naweng ..	Okway and Hnekpyan Myoungs.. .. ..
			Hnekpyan and Gnaloozan choungs.. .. ..
		Middle Naweng....	Gwaycho and Eing choungs .. ..
			Eing and Choungzouk choungs .. ..
			Choungzouk and Kyouktalong choungs.. .. .. ..
			Total Prome Division..
			Grand Total..

II.

BRITISH BURMA.

Forest work done in season 1872-73.

Trees girdled.	First class trees estimated.	Trees counted by Revising Officer		Percentage of girdled trees counted	Percentage of first class trees girdled.	Creepers cut.	Young teak cleared.	Other trees girdled	No of other kind of trees cut down	Remarks
		Trees girdled.	First class trees.							
502	..	..	..	..	..	..	..	..	..	
225	723	225	..	..	..	..	..	..	..	
57	..	57	..	..	..	..	..	..	..	
39	..	39	..	..	..	..	..	..	..	
55	..	55	..	..	..	..	..	..	..	
83	73	83	..	..	..	..	..	..	..	
25	..	25	..	..	..	..	..	..	..	
106	100	106	..	..	..	..	..	..	..	
17	..	..	..	..	..	..	..	..	..	
84	70	84	..	..	..	..	..	..	..	
202	190	202	..	58 %	..	..	..	..	..	
97	..	97	..	..	..	..	..	..	..	
18	..	18	..	..	..	..	..	..	..	
17	..	..	..	..	..	..	..	..	..	
74	..	74	..	..	..	..	..	..	..	
101	90	101	..	..	..	..	..	..	..	
95	..	..	..	..	..	..	..	..	..	
26	..	..	..	..	..	..	..	..	..	
36	..	..	..	..	..	..	..	..	..	
126	100	..	..	..	..	..	..	..	..	
15	..	..	..	..	..	..	..	..	.	
2,000	1,346	1,166	....	....	....	....	....	....	....	
230	274	..	..	..	..	..	.	.	..	
374	463	112	180	30	38	..	..	..	..	
337	469	..	..	..	..	..	.	.	..	
365	602	104	85	28½	55	..	..	.	..	
618	927	..	..	..	..	..	..	..	..	
399	380	..	..	..	..	..	..	..	..	
199	203	..	..	..	..	..	..	..	..	
478	601	..	..	..	..	..	..	..	..	
966	497	143	111	15	56	..	..	..	..	
236	137	235	182	100	56	..	..	..	..	
387	366	..	..	..	..	..	..	..	..	
99	86	5	3	5	62½	..	..	..	..	
153	120	278	210	89	54	..	..	..	..	
161	111	..	..	..	..	..	..	..	..	
5,002	....	....	....	....	....	....	....	....	....	
182	..	..	..	..	..	..	..	..	..	Trees standing beyond the proposed Reserve
259	..	..	..	..	..	..	..	..	..	
198	..	..	..	..	100 %	..	..	..	..	
166	..	..	..	..	..	..	..	..	..	
195	..	..	..	..	..	..	..	..	..	
1,000	....	....	....	....	....	....	....	....	....	
8,002	....	....	....	....	....	....	....	....	....	

STATEMENT III.

FOREST DEPARTMENT, BRITISH BURMA.

Statement of Timber brought from the Forests in British Burma by Permit-holders in 1872-73.

Name and number of section.	Name of Forest District.	Name of Permit-holder.	Duration of Permit. From.	Duration of Permit. To.	Timber worked out. Logs.	Timber worked out. Tons.	Amount paid as purchase-money for the timber.			Amount paid as fees for the issue of Forest permit.			Remarks.
Prome, East ..	Boolay ..	Messrs. Gladstone Wyllie & Co. ..	1st Jan. 1868.	1st Jan. 1874.	956	..	6,513	0	0	..	..	..	
	Nawing ..				826	..	4,515	0	0	..	..	..	
	Matoon ..	Messrs. Bulloch Brothers & Co. ..	12th Jan. 1862.	1st Jan. 1874.	1,059	..	4,007	2	0	..	..	..	
	Mamya ..		25th July 1862.		754	..	2,953	4	0	..	..	..	
	Opho.. ..		12th Jan. 1862.		246	..	1,041	6	0	..	..	..	
	Padashin ..		Do.		956	..	3,336	0	0	..	..	..	
	Shoaytanga and Talaidau	Mr. J. Brotto ..	1st Jan. 1871.	31st Dec. 1873.	531	..	2,740	10	0	..	..	..	
	Mudday ..	Said Mortaza ..	30th Nov. 1866.	30th Nov. 1872.	1,082	..	5,933	6	0	..	..	..	
III. ..	Bassein ..	Shoay Lope ..	24th March 1868.	1st Jan. 1874.	655	..	2,608	2	0	..	..	..	
	Quingouk ..	Oo Louk ..	do.	do.	..	..	..	..	..	..	..	..	
IV.—Rangoon..	Kauleya ..	Burma Company, Limited ..	..	..	337	..	2,726	8	0	1,000	0	0	
	Binedah ..		1st. Dec. 1871.	30th Nov. 1874.	..	..	..	..	..	266	10	8	
	Yainway ..		..	..	9	..	73	0	0	500	0	0	
		Total of the Irrawadic Division ..	..	..	7,411	5,481	36,447	12	0	1,766	10	8	
V.—Sittang West.	Myohla ..	Burma Co., Limited ..	1st Dec. 1870.	1st Dec. 1873.	1,033	..	9,134	4	0	..	..	..	
	Swah ..	B. B. T. Corp, Ld. ..	do.	do.	1,087	..	9,492	2	0	..	..	..	
	Khaboung ..	Ditto	do.	do.	978	..	9,020	0	0	..	..	..	
	Upyoo ..	Teen Cowrie ..	30th Nov. 1871.	30th Nov. 1874.	316	..	2,896	15	0	..	..	..	
	Koon ..	Burma Co., Limited ..	do.	do.	..	..	..	..	..	3,333	5	4	
	Samoh ..	Ditto ..	1st Dec. 1870.	1st Dec. 1873.	337	..	1,662	2	0	..	..	..	
VI.—Sittang East.	Doonzarit ..	Ko Loogalay ..	30th Nov. 1871.	30th Nov. 1874.	..	..	..	..	..	..	..	..	
	Shwè-gyeun ..	Toklopah ..	Do.	do.	41	..	81	0	0	..	..	..	
	Padah ..	Burma Co., Limited ..	1st Dec. 1870.	1st Dec. 1873.	683	..	4,055	7	0	806	10	8	
	Moong ..	Subbapathee ..	do.	do.	880	..	3,748	14	9	350	0	0	
	Youkthawah ..	Burma Co., Limited ..	do.	do.	307	..	1,633	15	0	1,167	0	0	
	Thoukyaghat ..	Teen Cowrie ..	do.	do.	1,649	..	8,744	1	0	..	..	..	
	Kannee ..	Burma Co., Limited ..	do.	do.	1,095	..	7,267	8	0	..	..	..	
	Koonoung.. ..	B. B. T. Corp, Limited .	30th Nov. 1871.	30th Nov. 1874.	365	..	2,664	0	0	..	..	..	
	Gwaythai ..	Burma Co., Limited ..	do.	do.	984	..	8,386	14	0	2,333	5	4	
	Bimbyai ..	Ditto ..	1st Dec. 1870.	1st Dec 1873.	336	..	2,492	14	0	1,666	10	8	
	Eintoon Toonkan ..	Ditto ..	do.	do..	25	..	198	14	0	766	10	8	
	Koonoung ..	Ditto ..	Old rates	..	76	..	74	0	0	..	..	..	
		Total of the Sittang Division ..	..	..	10,192	10,192	71552*	9	9	10.483	10	8	* Deduct Rs. 1,659-11-6 refund on timber seized &c.

STATEMENT III.—*(Concluded).*

FOREST DEPARTMENT, BRITISH BURMA.

Statement of Timber brought from the Forests in British Burma by Permit-holders in 1872-73.

Name and number of section.	Name of Forest District.	Name of Permit-holder.	Duration of Permit.		Timber worked out.		Amount paid as purchase-money for the timber.			Amount paid as fees for the issue of Forest permit.			Remarks.
			From.	To.	Logs	Tons.							
VII.—Upper Salween and Beeling Forests	Beeling Upper Salween ..	Mr. C. O. Johnstone ..	2nd Dec. 1870.	1st Dec. 1873.	..	..	..	..	..	..	..	..	
	(1.) Division ..	Moung Shoay Oo ..	2nd Dec. 1871.	1st Dec. 1877.	2	..	14	10	0	..	..	..	
	(2.) Do. ..	Kharwai Htaw ..	Do.	Do.	776	..	5,843	12	0	..	..	..	Rs 70 of this sum is the revenue on 11 logs of Statement 1871-72.
	(3.) Do. ..	Mr. C. O. Johnstone ..	Do.	Do.	504	..	2,642	0	0	..	..	..	
	Yoonzaleen ..	Ditto ..	1st Jan. 1871.	31st Dec. 1873.	2	..	12	10	0	..	..	..	
VIII.—Thoungyeen ..	Thoungyeen ..	Ko Sit Por ..	1st Feb. 1872.	31st Jan 1873.	1,702	..	15,159	6	0	..	..	..	Is the revenue collected on outturn of timber of 1871-72. The amount due on timber exhibited is Rupees 18,179-12-0, which will be collected in 1873-74.
	Houndraw ..	Mr. C. O. Johnstone ..	8th Dec. 1871.	7th Dec. 1874.	..	..	..	..	..	..	..	..	
IX.—Lower Salween and Attaran Forests.	Meeboung and Myangalay ..	Nga Chain ..	15th May 1871.	14th May 1874.	441	..	220	8	0	..	..	..	
	Part of Lower Salween.	Syah Pah Poo ..	17th Apl. 1871.	16th Apl. 1874	..	..	..	..	..	..	..	..	
	Kooloon Forests .	Ko Tharooway ..	1st Dec. 1871.	30th Nov. 1874.	894	..	447	0	0	16	11	0	
	Hlinebway ..	Syah Pah Poo ..	2nd Dec. 1870.	30th Nov. 1874.	1,990	..	995	0	0	60	0	0	
	Mittigate .. / Kyouktaga ..	Ramasawmy Rajah ..	1st Dec. 1871.	Do.	..	..	..	..	..	100	0	0	
Tracts Nos.	12, 13 and 14	Pahapway ..	..	..	7	..	75	9	0	..	..	..	Old timber Rs. 66-13 of this sum is the revenue collected on 16 logs shewn in last year's statement.
Tracts Nos.	40, 41 and 42	Kyat Choung ..	..	..	..	..	*344	11	0	..	..	..	
Tracts Nos.	19, 20, 21 Natchoung .	Moung Khine ..	5th Dec. 1872.	4th Dec. 1873.	34	..	17	0	0	25	0	0	
Tracts Nos.	23, 24 and 29, Goonglay choung ..	Ditto ..	Do.	Do.	..	..	..	..	..	15	0	0	*Is the revenue collected on 88 logs of 1871-72.
		Total..	..	..	6,352	5,643	55,772	2	0	216	11	0	
		Add duty collected on this timber at Kadoo .	..	..	..	..	29,078	9	0	..	..	..	
		Total Salween Division .	..	..	6,352	5,643	84,850	11	0	216	11	0	
		Grand Total of three Divisions ..	..	..	23,955	..	192851	0	9	12,46	0	4	

Form No. 21.

FOREST DEPARTMENT, BRITISH BURMA.

Annual Summary of Revenue and Expenditure in the different Divisions during 1872-73.

Classification.	Rangoon.			Tharrawaddy.			Prome.			Total Irrawaddy Division.			Sittang Division.			Salween Division.			Kadoe Revenue Station.			Grand Total.		
	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.	RS.	A.	P.
RECEIPTS.																								
I. Sale of timber at depôts	3,60,323	2	6	122	9	11	.....	...	...	3,60,445	12	5	.....	...	...	.....	...	...	.....	...	...	3,60,445	12	5
II. Sale of timber removed by purchasers...	2,799	8	0	.....	...	...	33,648	4	0	36,447	12	0	69,892	14	3	55,772	2	0	29,078	9	0	1,91,191	5	3
III. Duty on foreign timber	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	2,13,147	14	0	2,13,147	14	0
IV. Permit fees	1,766	10	8	.....	...	...	.....	...	...	1,766	10	8	10,483	10	8	216	11	0	.....	...	...	12,467	0	4
V. Grazing dues	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...
VI. Sale of fruits, &c.	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...
VII. Sale of confiscated, drift, or waif timber	2,120	0	0	25	15	9	333	13	0	2,479	12	9	2,509	14	0	.....	...	...	18,388	0	0	23,377	10	9
VIII. Fines and forfeitures	351	4	0	35	0	0	36	0	0	422	4	0	460	0	0	795	0	0	2	0	0	1,679	4	0
IX. Miscellaneous receipts	6,183	9	9	1,310	15	9	836	14	9	8,331	8	3	9,355	14	3	1,639	15	4	5,932	9	0	25,259	14	10
Total receipts	3,73,544	2	11	1,494	9	5	34,854	15	9	4,09,893	12	1	92,702	5	2	58,423	12	4	2,66,549	0	0	8,27,568	13	7

	Expenditure.																										
	A.—Conservancy and Working.																										
I.	Timber expenses	41,549	9	3	56,786	6	8	167	13	7	98,503	13	6	9,013	1	6	4,073	14	0	8,839	1	0	1,20,429	14	0
II.	Purchase of stock	3,176	7	0	6,889	10	9	23	0	0	10,089	1	9	868	5	0	7,419	0	0	214	8	0	18,590	14	9
III.	Feed and keep of cattle	4,372	1	7	7,653	14	0	624	1	0	12,650	0	7	834	7	0	.....	...	...	.....	...	...	13,484	7	7
IV.	Rent of leased forests	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...
V.	Charges on collecting revenue on grass &c.	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...
VI.	Plantations	29,001	10	0	1,203	11	11	102	0	0	30,307	5	11	3,397	6	4	.....	...	...	.....	...	...	33,704	12	3
VII.	Forest work	1,166	5	9	2,118	9	3	15	0	0	3,299	15	0	1,007	3	0	654	8	0	.....	...	...	4,961	10	0
VIII.	Forest survey	1,686	4	0	3,124	14	2	1,477	10	0	6,288	12	2	5	0	0	211	6	0	.....	...	...	6,505	2	2
IX.	Experiments on timber	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...	.....	...	...
X.	Communications and buildings ...	3,853	2	0	2,149	0	0	.....	...	...	6,002	2	0	200	0	0	7	8	0	42	12	0	6,252	6	0
	Total Conservancy and Working ...	84,805	7	7	79,926	2	9	2,409	8	7	1,67,141	2	11	15,325	6	10	12,366	4	0	9,096	5	0	2,03,929	2	9
	B.—Establishments.																										
I.	Salaries	43,232	3	6	25,238	0	0	10,519	3	0	78,989	6	6	16,173	11	5	11,679	9	0	6,048	0	0	1,12,890	10	11
II.	Allowances	4,700	1	6	3,697	1	5	603	3	8	9,000	6	7	1,823	6	0	1,873	0	0	.....	...	...	12,696	12	7
III.	Contingencies	3,691	7	4	426	3	3	1,110	3	0	5,227	13	7	603	5	0	338	5	0	93	8	0	6,262	15	7
IV.	Official postage	227	7	6	44	4	0	32	1	6	303	13	0	74	2	6	20	3	0	20	0	0	418	2	6
	Total Establishments ...	51,851	3	10	29,405	8	8	12,264	11	2	93,521	7	8	18,674	8	11	13,911	1	0	6,161	8	0	1,32,268	9	7
	Grand Total of Expenditure ...	1,36,656	11	5	1,09,331	11	5	14,674	3	9	2,60,662	10	7	33,999	15	9	26,277	5	0	15,257	13	0	3,36,107	12	4

N. B.—The items comprising A VII *Forest Work* are Girdling Rs. 1,435-0-9. Clearing Reserve Boundaries Rs. 1,043-1-0. Cutting creepers Rs. 34. Inspection Rs. 1,944-6-3. Contingencies Rs. 505-2-0.

Form No. 22.

FOREST DEPARTMENT, BRITISH BURMA.

Annual Abstract Cash Account of the Cash Transactions of the Forest Department British Burma, for the year 1872-73.

Year.	Heads of Accounts.	Rupees. RS.	A.	P.	Year.	Heads of Accounts.	Rupees. RS.	A.	P.
1872-73.	To Cash Balance in hand on 1st April 1872	16,402	14	9	1872-73.	By Expenditure of the Repartment	3,36,197	12	4
	„ Revenue realized	8,27,568	13	7		„ Remittances to State Treasuries	7,48,481	13	10
	„ Income tax	912	12	...		„ Do. on account P. W. D.	83,499	11	11
	„ Remittances from State Treasuries	3,43,405	6	6		„ Repayments of Deposits	21,163	1	4
	„ Ditto. „ Uncov : Civil Pension Fund ...	604	8	...		„ Advances Recoverable	21,391	1	6
	„ Ditto. „ Military Fund	747	9	10		„ Allowances Refunds and Drawbacks	1,584	2	6
	„ Deposits	21,970	3	...		„ Cash Balance on 31st March 1873	16,432	11	2
	„ Advances Recoverable	10,425	1	11					
	„ Treasury Deposits Sittang	4,000	...	...					
	„ Advances Recoverable Bengal Government ...	990	...	...					
	„ Ditto. Madras Government ...	346	6	...					
	„ Allowances Refunds and Drawbacks	1,295	...	...					
	XVI. Miscellaneous (unclaimed Deposits) ...	81	11	...					
	GRAND TOTAL RUPEES.....	12,28,750	6	7		GRAND TOTAL RUPEES.....	12,28,750	6	[illegible]

Form No. 23.

FOREST DEPARTMENT BRITISH BURMA.

Annual Statement of outstandings and Liabilities of the Department on account of Contractors and Disbursers 1872-73.

Names of Divisions.	Department Debtor.									Department Creditor.									Balance Due.					
	At commencement of the year.			Recoveries in cash and value of supplies and work done during the year.			At close of the year.			At commencement of the year.			Payments made during the year.			At close of the year.			To Department outstandings.			By Department Liabilities.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Tharrawaddie	.....	...	...	1,41,221	11	7	1,41,221	11	7	1,29,510	2	4	1,47,267	4	10	2,76,777	7	2	1,39,550	14	1	3,995	2	6
Rangoon	.....	...	...	21,617	10	8	21,617	10	8	16,216	13	4	32,568	9	10	48,785	7	2	27,167	12	6	.....	...	...
Prome	.....	...	...	1,597	8	7	1,597	8	7	173	9	0	3,480	14	6	3,654	7	6	2,056	14	11	.....	...	...
Sittang	.....	...	...	3,604	8	6	3,604	8	6	978	9	0	3,685	10	8	4,664	3	8	1,059	11	2	.....	...	...
Salween...	.....	...	...	933	0	0	933	0	0	790	0	0	553	0	0	1,343	0	0	410	0	0	.....	...	...
Grand Total Rupees...	.....	...	...	1,68,974	7	4	1,68,974	7	4	1,47,669	1	8	1,87,555	7	10	3,35,224	9	6	1,70,245	4	8	3,995	2	6

Form

FOREST DEPARTMENT

Statement of Timber brought from the Forests

Name of Divisions.	Name of Forest.	Round Logs.				
		Yatthits.	Loozars.	Doogies.	Yard and Mast pieces.	Crooks.
	Average contents in cubic feet.	(25)	(50)	(60)	(90)	(12)
Tharrawddie	Beeling	58	471	495	3	...
	Mokkah	49	192	98	...	...
	Minhla	116	376	293	...	1
	Gamoung	118	432	316	1	...
	Toung choung	17	247	228	1	...
	Boben	40	406	524	9	9
	Shaboung	26	350	562	12	...
	Shoaylay	37	962	886	36	...
	Mimboo	4	94	52	...	...
	Toungnyo	32	147	334	7	...
	Logs ...	497	3,677	3,788	69	10
	Tons ...	248·5	3,677	4,545·6	124·2	2·4
Southern or Rangoon	Pegu	25	82	471	...	...
	Onkkan	33	171	41	...	...
	Zamayee	9	28	70	6	...
	Thongzai	12	64	71	...	...
	Pounglin	10	28	141	1	...
	Magayee	.....	4	.....	...	...
	Logs ...	89	377	794	7	...
	Tons ...	44·5	377	952·8	12·6	...
Drift timber	Obtained from various sources ...					
	Drift Timber { Irrawaddy Division	172	457	166	6	...
	Drift Timber { Sittang "	36	149	288	...	1
	Drift Timber { Salween "	331	610	959	...	4
	Sea-shore Timber...	88	189	78	...	1
	Logs	627	1,405	1,491	6	6
	Tons	313 5	1,405	1,789·2	10 8	1·44
	Total of Logs	1,213	5,459	6,073	82	16
	Total of Tons ...	666·5	5,459	7,287·6	147.6	3.84

No. 24.

BRITISH BURMA.

by Contractors and Government Agency. 1872-73.

Square Logs.						
Squares.	Planks and Shin-byns.	Sleepers.	Small pieces.	Logs.	Tons.	Remarks.
(40)	(8)	(3·5)	(7)			
1	.....	.....	.....	1,037	1,110·6	9 Pynkadoe to P. W. D.
.....	.....	.....	.....	339	334 1	
9	.....	.....	.....	795	794·04	
1	.....	.....	.....	868	872 8	
.....	.....	.....	.....	493	530·9	
.....	.....	2	.....	990	1,073·3	
.....	.....	.....	.....	950	1,058 0	
.....	.....	.....	.....	1,921	2,108·5	
.....	.....	.....	.....	150	158·4	
.....	.....	.....	.....	532	591·2	12 Pynkadoe to P. W. D.
11	.....	2	.....	8,075	.....	
8·8	.....	·14	.....	.....	8,631·84	
.....	.....	.....	.....	578	660 2	
.....	.....	.....	.....	245	236·7	
.....	.....	.....	.....	113	127·3	
.....	.....	.....	.....	147	154·5	
.....	.....	.....	.....	180	204·2	
.....	.....	.....	.....	4	4	
.....	.....	.....	.....	1,267	.....	
.....	.....	.....	.....	.....	1,386·9	
2	.....	.....	.....	803	754·6	
.....	.....	.....	.....	963*	904·04	*Includes 489 logs } *Unclassified drift timber.*
24	.....	.....	.....	1,950*	1,964 06	* „ 22 „ }
6	.....	.....	.....	362	331·64	
32	.....	.....	.....	4,078	.....	
25·6	.....	.....	.....	.....	3,954·34	
43	.....	2	.....	13,420	.....	
34·4	.....	.14	.....	.....	13,973·08	

Form No. 25.

FOREST DEPARTMENT, BRITISH BURMA.

Statement of timber received and disposed of from the Forests in British Burma, by the Forest Department from 1st April 1872, to 31st March 1873.

Particulars	No.	Total.
Number of Logs in hand on 31st March 1872	...	91,435
Do. of Logs brought from the Forests by Contractors and Government Agency :—		
Logs	9,340	
Sleepers	2	
Drift timber collected at depôts	4,078	
Total as exhibited in Form No. 24	...	13,420
Number of Logs brought from the Forests by Permit Holders:		
Prome East and West	7,065	
Rangoon	346	
Sittang	10,192	
Salween	6,352	
Total as exhibited in Statement III... ...	...	23,955
Kadoe Revenue Station.		
Number of Logs registered for duty of 1872-73	74,154	74,154
Total number of logs... ...	...	202,964

Particulars.	No.	Total.
Number of Logs sold in 1872-73, as per Form No. 26	16,563	
Deduct P. W. D. timber &c., included in Form No. 26 of 1871-72.	1,277	15,286
Do. of Logs sold by Permit Holders in 1872-73	23,955	23,955
Drift timber delivered to claimants on proof of ownership ...	2,383	2,383
Number of Logs expended for Government purposes	6	6
Do. of Logs lost or perished during the year	...	...
Kadoe Revenue Station.		
Number of Logs cleared on payment of duty in 1872-73 ...	98,545	98,545
By balance (of which 32,467 logs were on hand at Kadoe Station) on 31st March 1873	...	62,789
Total number of logs ...	...	202,964

Form No. 26.

FOREST DEPARTMRNT, BRITISH BURMA.

Statement shewing the amount realized on account of different classes of timber received on Government account and sold during 1872-73.

Particulars.		No. of Logs.	Cubical contents.	Amount realized.			Average amount realized per log.			Average cubical contents per log.	Average amount realized per ton.		
				Rs.	A.	P.	Rs.	A.	P.		Rs.	A.	P.
Round Logs	Yatthits	2,829	70,553	26,270	5	2	9	4	7	24	18	9	10
	Loozars	4 800	282,216	132,319	15	2	27	9	0	58	23	7	5
	Doogies	5,365	379,823	145,900	9	1	27	3	1	70	19	3	3
	Yard, mast and stem-pieces	16	2,418	3,075	4	0	192	3	3	151	63	9	5
Squares	Doos, doodoos, and thokes	1	40	40	0	0	40	0	0	40	50	0	0
Small pieces	Crooks	344	1,713	2,056	0	0	5	15	7	5	60	0	2
	Small pieces	105	1,508	227	0	0	2	2	7	14	7	8	5
	Woods of other kinds	21	1,240	735	0	0	35	0	0	59	29	10	2
	Total logs	13,481	739,511	3,10,624	1	5	23	0	7	54	21	0	0
Sleepers	Teak	42	142	103	0	0	2	7	3	3	36	4	3
	Pynkadoe	958	1,994	1,002	8	0	1	0	8	2	25	2	2
	Total sleepers	1,000	2,136	1,105	8	0	1	1	8	2	25	14	1
Confiscated, drift, and waif timber		2,082	71,588	23,377	10	9	11	3	7	34	16	5	3
	Grand total	16,563	813,235	335,107	4	2	20	3	8	49	20	9	7

	Rs.	A.	P.
Realized under Head I, of Revenue	3,60,445	12	5
Do. do. VII, „	23,377	10	9
	3,83,823	7	2
Deduct on account of Sale of 1871-72 realized in 1872-73 including timber sold to P. W. D., in 1871-72	50,028	3	0
	3,33,795	4	2
Add on account of Sale No. 8 of 1872-73 to be realized in 1873-74	1,312	0	0
Total Sales of 1872-73 ...	3,35,107	4	2

Form No. 27.

FOREST DEPARTMENT, BRITISH BURMA.

Statement shewing the amount expended on account of the different classes of timber received on Government account during 1872-73.

Particulars.	No. of logs.	Cubical contents.	Amount paid to Contractors.			Average amount paid per log.			Actual cubical contents per log.	Average amount paid per ton.			Remarks.
			RS.	A.	P.	RS.	A.	P.		RS.	A.	P.	
Yatthits	586	14.650	2,453	14	0	4	3	0	25	8	5	11	
Loozars	4 054	222.970	33.948	14	0	8	6	0	55	7	9	9	
Doogies	4,603	289 989	53,449	2	0	11	9	9	63	9	3	6	
Yard, mast, keel and stem pieces...	76	6,840	1,444	0	0	19	0	0	90	10	8	11	
Squares	11	440	209	0	0	19	0	0	40	23	12	0	
Shinbyns and planks	.....	.....	.....	...	...	...	..	...	...	...	...	...	
Crooks	10	120	30	0	0	3	0	0	12	12	8	0	
Small pieces	.....	.....	... ..	...	...	...	...	...	...	...	...	...	
Total brought out by Contractors ...	9,340	535.009	91,534	14	0	9	2	3	57	8	8	10	
Total of sleepers from Tharawaddie ...	2	610	3	0	0	1	8	0	35	21	0	0	
Drift Timber by Government Agency ...	4,078	195,744	16,312	0	0	4	0	0	48	4	2	8	
Total paid for years out-turn	13,420	730,753	1,07,849	14	0	8	0	8	. .	7	6	0	
Add expenditure incurred in 1871-72 to account of operations in 1872-73, inclusive of timber neaped in the Meimakha	.....	.....	12,450	0	0	1	7	9	...	1	13	9	
Add cost of administration, direction, and other expenditure chargeable on timber brought to depots	.....	.. ...	1,19,023	8	10	8	13	10	...	8	2	3	
I.—Total expenditure on Government timber of season 1872-73	.....	.. ...	2,39,323	6	10	17	13	4	...	16	6	0	
Deduct expenditure of 1871-72 included above to exhibit actual cost of timber	.....	.....	12 450	0	0	...	...	...	...	...	...	...	
	.....	.....	2,26 873	6	10	...	...	...	...	...	...	...	
II.—Do. chargeable to 23,955 logs of Permit timber...	.....	.....	81,486	8	6	...	...	...	...	...	...	...	
III.—Do. do. to Kadoe Revenue station ...	.....	.....	15,257	13	0	...	...	...	...	...	...	...	
IV.—Amount of part payments in 1872-73 to account of timber operations of 1873-74	.....	.....	12,580	0	0	...	...	...	...	...	...	...	
Total expenditure of the Department on account of this year	.....	.....	3,36,197	12	4	...	...	...	...	...	...	...	

Form No. 28.

FOREST DEPARTMENT, BRITISH BURMA.

Annual Account of Forest Revenue for 1872-73.

Receipts.	RS.	A.	P.	RS.	A.	P.	Disbursements.	RS.	A.	P.	RS.	A.	P.
Amount of Revenue realized in 1872-73 ...	8,27,568	13	7				Amount disbursed in 1872-73	3,36,197	12	4			
Deduct.							*Deduct*						
Amount realized on account of previous periods	95,671	1	0				Amount disbursed on account of 1873-74...	12,580	0	0			
Balance ..	... . ..			7,31,897	12	7	Balance ..	... .			3,23,617	12	4
Add							*Add*						
Outstandings on account of year ...	....			* 19,431	12	0	Amount disbursed in 1871-72 on account of 1872-73	12,450	0	0			
Value of the year's transactions ...	.....			7,51,389	8	7	Amount due for transactions during the year under review but not yet disbursed.	3,995	2	6	16,445	2	6
							Real cost of the year's transactions ..	. .			3,40,062	14	10

	RS.	A.	P.
* Salween Permit Timber	18,179	12	0
Balance of Sale 8 of 1872-73	1,312	0	0
	19,491	12	0

	RS.	A.	P.
Value of the year's transactions	7,51,389	8	7
Cost of the year's transactions	3,40,062	14	10
Balance ..	4,11,326	9	9
Add difference between the value of stock at the commencement and close of the year ...	4,791	0	0
Nett result of the year... ...	4,16,117	9	9

APPENDIX A.

Comparative Statement shewing the burdens which Foreign and British Timber have to bear before they reach a Port of Shipment.

Division and Nature of Charges.	Charges.	Royalty.	Import.	Export.	Total.	Remarks.
Foreign.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
Karennee and Shan States.						
Price paid for logs launched into the water including Royalty to Chief Rs. 10 to 35 according to quality, average say	22 8 0					
Rafting charges from Kyodan to Kadoe per log	4 0 0					
Import duty at Kadoe per log ...	...	...	2 12 0			
Cost per log of ordinary good timber laid down in Moulmein	...	...	...	...	29 4 0	Average contents per log 50 cubic ft.
Ningyan Forest.						
Royalty to the King of Burma depending upon special agreement and according to quality of logs, but say for an ordinary doogie of good quality	...	8 0 0				
Expenses of felling, dragging and launching per log, say	15 0 0					
Rafting charges from Ningyan to Toungoo per log, say	2 8 0					
Rafting charges from Toungoo to Rangoon per log, say	3 12 0					
Cost per log of ordinary doogies of good quality laid down in Rangoon.	...	...	...	...	29 4 0	do. do 50 cubic ft
Mandalay Forests.						
Royalty to the King depending upon special arrangement, and according to quality of logs, but say for ordinary doogies of good quality ..	...	7 0 0				
Expenses of felling, dragging and launching per log, say	15 0 0					
Rafting charges from Ava to Rangoon per log	3 0 0					
Cost per log of an ordinary doogie laid down in Rangoon	...	...	...	...	25 0 0	do do 37 cubic ft
British						
Prome Permit Timber	20 0 0	7 0 0	...	...	27 0 0	
Sittang do	20 0 0	7 0 0	...	...	27 0 0	
Salween do.	18 0 0	7 0 0				
		2 12 0	at Kadoe.		27 12 0	
Tharawadie worked by Government Contractors	15 0 0	...	...	...	15 0 0	

APPENDIX B.

Statement exhibiting cost of feed and keep of Elephants of the Forest Department, British Burma, for the official year 1872-73, *as compared with that of the Commissariat Department for the same period.*

Division.	Number of Elephants kept	Total cost of feed for the year.	Total cost of keep for the year	Amount paid for medicines.	Amount paid for gear.	Total expenditure per annum.	Average cost for each animal per annum.	Average cost of a Commissariat Elephant for 1872-73.	Average cost per animal of the Forest Department per mensem	Average cost per animal of the Commissariat Department per mensem.	Value of labor in cash receipts and work performed.	Remarks.
		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
Rangoon	9	1,605 2 0	2,581 6 7	165 5 0	20 4 0	4,372 1 7	485 12 7		40 7 8		.....	
Prome...	2	43 0 0	576 0 0	3 0 0	2 1 0	624 1 0	312 0 6		26 0 0		.....	
Sittang	2	207 8 0	620 3 0	6 0 0	1 12 0	835 7 0	417 11 6	500 6 5	34 12 11	41 11 $2\frac{5}{12}$	.....	
Tharawaddie ...	17	2,580 11 3	4,943 5 7	67 11 2	62 2 0	7,653 14 0	450 3 8		37 8 3		.....	
Salween	...	.....	.....	.....	.....	.....	... .		.....		.....	
Total*...	30	4,436 5 3	8,720 15 2	242 0 2	86 3 0	13,485 7 7	449 8 3	500 6 5	37 7 4	41 11 $2\frac{5}{12}$	.....	The keep of the Elephants of the Forest Department per mensem for each animal is Rs. 24. In the Commissariat Department it is Rs. 21 if it were possible to engage men to work in the Forests at this latter rate the cost would be Rs. 3 per mensem less per animal.

* The number of Elephants at each of the Depôts did not remain constant throughout the year : the average has therefore been taken.

Appendix C.

(Being a continuation of Appendix D of last year.)

STATEMENT showing Expenditure incurred on account of Teak Plantations in British Burma, up to close of official year 1872-73.

DIVISIONS.	Name of Plantations	Previous area planted.	Area planted in 1872-73.	Total area planted.	Previous cost on area planted.	Cost during 1872-73. On area planted prior to 1870-71.	Cost during 1872-73. On area planted in 1870-71.	Cost during 1872-73. On area planted in 1871-72.	Cost of formation in 1872-73.	Total cost of area planted.	Amount realized on crops prior to 1872-73.	Amount realized on crops 1872-73.	Total amount realized on crops.	Total nett cost of area planted Formation and Maintenance, including 1872-73	Average cost per acre during 1872-73. Maintenance of area previously planted.	Average cost per acre during 1872-73. Maintenance of area planted in 1870-71.	Average cost per acre during 1872-73. Maintenance of area planted in 1871-72.	Average cost per acre of Formation and Maintenance prior to 1872-73.	Average cost per acre for formation in 1872-73.	Average cost per acre for formation and maintenance on whole area planted.	REMARKS.
					RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
RANGOON ..	Kyokpyoogan	683·5	..	683·5	40,789 2 0	1,848 13 0	3,915 14 3	10,461 12 9	.. .. ..	57,045 10 0	1,448 10 0	119 15 0	1,568 0 0	55,477 1 0	10 4 4	26 8 9	‡ 29 7 6	57 8 10	.. .. ..	81 2 5	‡ This includes Rs. 1,218 spent in re-stocking 87 acres
	Magayee	..	142	142	.. .. ..	.. .. ..	.. .. ..	.. .. ..	10,048 6 1	10,048 6 1	.. .. ..	.. .. ..	.. .. ..	10,048 6 1	.. .. ..	.. .. ..	.. .. ..	70 12 2	70 12 0	70 12 2	
THARRAWADDIE	Choungwah	340	..	340	33,316 7 0	316 5 8	397 4 0	.. .. ..	.. .. ..	33,970 0 8	243 10 9	.. .. ..	243 10 9	33,726 5 11	0 14 10	4 13 1	.. .. ..	97 4 4	.. .. ..	99 3 1	
	Queaymakeing ..	144	..	144	14,510 13 4	465 2 3	.. .. ..	.. .. ..	.. .. ..	14,975 15 7	.. .. ..	.. .. ..	.. .. ..	14,975 15 7	3 3 8	.. .. ..	.. .. ..	100 12 3	.. .. ..	104 1 4	
SITTANG.. ..	Kannee	70	..	70	1,373 2 4	.. .. ..	.. .. ..	.. .. ..	.. .. ..	1,373 2 4	.. .. ..	.. .. ..	.. .. ..	1,373 2 4	.. .. ..	.. .. ..	.. .. ..	19 9 10	.. .. ..	19 9 10	
	Pyoonchoung	644 78	..	644 78	18,980 1 0	1,357 2 0	569 14 0	.. .. ..	.. .. ..	20,907 1 0	1,027 6 0	.. .. ..	1,027 6 0	19,879 11 0	2 1 7	14 1	.. .. ..	27 13 8	.. .. ..	27 15 4	
		1,882·28	142	*2024·28	1,08,969 9 8	3,987 6 11	4,823 0 3	10,461 12 9	†10,048 6 1	1,38,320 3 8	2,719 10 9	119 15 0	2,839 9 0	1,35,480 9 11	2 1 3	2 6 0	29 7 6	65 5 2	70 12 0	63 13 7	

The area now planted with teak in the Province consists of—

	A.	R.	P.
Permanent Plantations ..	2,074	1	0
Experimental Plantations ..	123	3	0
	2,198	0	0

In addition, the following areas have been cleared and prepared in 1873-74.

Magayee	213	0	0
Pyoonchoung	50	0	0

NOTE.—All expenditure on the following areas having ceased with the exception of a charge for fire tracing and thinning, they will in future be excluded from this statement and the cost shown separately.

	Acres.
Boben Choungwah	270
Queaymakeing	58
Pyoon Choung	120
Total Acres	448

† In addition to the above, Rs. 4,354-2-3 represents extraordinary expenditure incurred in starting plantation operations on a new site also cost of experimental cultivation and Cinchona Expenditure.

Appendix D.

Area of Reserve Teak Forests.

Reserved Forests.	Area in 1871-72.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.
	Square miles.	Square miles.	Square miles.	Square miles.
Rangoon	...	...	...	...
Tharrawaddie	79·46	...	...	79·46
Promo	29·17	...	...	29·17
Sittang	5·49	...	...	5·49
Salween	20·18	...	...	20·18
TOTAL ...	134·30	...	...	134·30

Area of Unreserved Forests.

Unreserved Forests.	Area in 1871-72.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.
	Square miles.	Square miles.	Square miles.	Square miles.
Rangoon	400	...	...	400
Tharrawaddie	590·54	...	...	590·54
Promo, east 225 ...	195·83	...	...	195·83
Sittang... { west...255· east... 94·51 } ...	349·51	...	...	349·51
Salween	310·82	...	...	310·82
Not included in working plan.		...	...	
Promo, west	200	...	...	200
Upper Salween	106	...	...	106
Pandau	10	...	...	10
Attaran ...	100	...	...	100
TOTAL ...	2262·70	...	...	2262·70

Area of Plantations.

Plantations.	Area in 1871-72.	Total cost.	Area added during 1872-73.	Amount expended during 1872-73, on maintenance and extension.	Total area up to 1872-73.	Total expenditure incurred up to 1872-73.
	Acres.		Acres.		Acres.	
Rangoon	683·5	40,789-2-0	142·0	26,304-14-1	825·5	67,094-0-1
Tharrawaddie ...	484·0	47,827-4-4	...	1,118-11-11	484·0	48,946-0-3
Prome	Experimental plantation only.					
Sittang	714·78	20,353-3-4	...	1,927-0-0	714·78	22,280-3-4
Salween	Experimental plantation only.					
TOTAL ...	1882·28	1,08,969-9-8	142·0	29,350-10-0	2024·28	1,38,320-3-8

Area of Forest Tracts protected from fire.

Forest tracts protected from fire.	Area in 1871-72.	Total cost.	Additional area protected in 1872-73.	Amount expended in 1872-73.	Total area protected up to 1872-73.	Total expenditure incurred up to 1872-73.
	Acres.		Acres.		Acres.	
Rangoon	683·5	1,110-11-0	142	346-2-0	825·5	1,456-13-0
Tharrawaddie ...	436·7	572-12-0	14678·3	1,675-0-2	15115·0	2,247-12-2
Prome	66·0	198-0-0	13056·0	612-12-4	13122·0	810-12-4
Sittang	644·8	408-0-0	...	32-8-0	644·8	440-8-0
Salween	8960·0	30-0-0	...	...	8960·0	30-0-0
TOTAL ...	10791·0	2,319-7-0	27876·3	2666-6-6	38667·3	4985-13-6

Prosecution for breaches of the Forest Rules.

	Number of prosecutions.		Convictions obtained, or still pending.	
	Number of cases.	Number of persons.	Number of cases.	Number of persons.
Rangoon	1	1	1	1
Tharrawaddie	10	16	10	12
Prome	7	19	2	12
Sittang	8	8	8	8
Salween	7	10	7	7
Total ...	33	54	28	40

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF MYSORE,

1872—73.

By CAPTAIN G. J. VAN SOMEREN,

CONSERVATOR OF FORESTS.

REVIEW BY THE CHIEF COMMISSIONER.

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1. The Report has been drawn up by the Conservator, Captain van Someren.

FOREST LEGISLATION.

2. The Notifications issued during the year, as described under the head of Forest Legislation, do not call for notice here.

SPECIAL.

HEAD I.—STATE FORESTS.

FIRST SECTION.

3. The only additions made to the State Forests during the year were (1) the Hundigundi Betta forests in the Nandidroog Range, with an area of 9326 acres; and (2) the Tullagudde Forest in Sorub in the Nagar Range, measuring five square miles.

The List of State Forests, given under this head, shows that they number 35; viz., 4 evergreen and 31 deciduous—the area of 32 of them being 464¼ square miles; while that of the remaining 3, is not yet known.

SECOND SECTION.

4. No remarks.

THIRD SECTION.

PROTECTION OF THE FORESTS.

5. With respect to the remarks under this head on (1) the insufficiency of the existing watching-establishment for the due protection of the Forests; and (2) the

want of Elephants for use by the Forest Officers in Inspection work, the Conservator should submit, separately, any proposals thereon he may deem to be called for. The benefit of the total exclusion of fires from forests can hardly be disputed.

6. There were 372 cases of breach of the Forest Rules, as against 428 in 1871—72; the number of persons implicated being 483. Convictions were obtained in 328 cases against 426 persons, which is a creditable proportion.

7. The information given in paras 12 to 16, shews that the working of the Subordinates of the Department in the Shimogah District of the Nagar Range has not been satisfatory; and that the exercise of a closer and more watchful supervision over their proceedings, than hitherto, is urgently demanded. The extent of the range no doubt makes this difficult; but it is hoped that Mr. Dickinson will soon be fit to relieve Captain Jarrett of a portion of his present heavy work.

FOURTH SECTION.

Improvement and Extension of the Forests.

8. The work under this head during the year under report, was limited to the demarcation of 14½ square miles of Forests, and 2⅕ of Fuel Reserve in the Nundidroog, and of 8 miles of boundary in the Mysore Range; the setting off of five plots for Cardamom planting in Hassan, and the clearing-out of some of the old lines.

The completion of the demarcation of all tracts taken up for forest-purposes, where still unfinished, should be carried out without delay.

9. The following roads were opened out; 11⅛ miles in the Hennigiri Forests in the Nagar Range, at Rupees 157 per mile; 2 miles of the Hebbi Road at Rs. 160—6—8 per mile; and 20 miles were traced between Arsen Betta and Bailoor, and Aloor and Sethalli, in Hassan, which will be completed during the current year.

10. The Survey of 14,587 acres of Forest and Fuel Reserves in the Nundidroog Range, and the boundary Survey maps of some of the Forests in the Mysore Range, were completed. The work was stopped, owing to the discharge of the Surveyors, on 31st October 1872, or the out-turn would have been greater.

Plantations.

11. The Tabular Return of Plantations (paras 25 to 40), gives a total area of 385¼ acres planted up, at a cost of Rupees 15,565, during the year under report; but the Conservator explains that the figures entered in it do not give an accurate idea of the work done, or the outlay thereon—fencing, ditching, and clearing and preparing the ground for the coming year, forming a large portion of the work done, while the extent of actual plantings alone, is shewn in the Return. The addition of a column shewing the expenditure on general work of the above nature, separate from that on actual plantings, would meet the case, and should be adopted in future. It will also be desirable to shew the *total area* of each plantation as demarcated or enclosed.

12. The Plantations referred to in this section of the Report, comprise (1) 4 of teak; (2) 2 of ordinary timber and 1 of Australian trees; (3) 9 for Fuel purposes; and (4) 4 of Sandal.

13. The casualties in the Sakrebeil teak-plantation, during the last two years, were considerable, and the causes of their occurrence should be closely watched and provided against, if possible. The progress of the Kakunkote plantation appears to have been satisfactory; but, excepting it, little seems to have been done under this head during the past year.

14. The reported condition of the Kumbarhalli plantation, and the success of the young Jarrah trees planted in it, are satisfactory. The failure of the Australian trees, at Santawarri, is very disappointing. This result appears to be partly due to defective arrangements for planting-out the young seedlings when ready, which will, it is hoped, be avoided in future. The climate of Santawarri appears, however, to be unsuited to Australian trees.

15. The reported progress of the fuel-plantations during the year was fairly encouraging; but it is difficult, at present, to form an opinion as to their probable success or otherwise. The practice of pitting fuel-trees may doubtless succeed as regards the growth of the trees; but its cost must prevent its general adoption for such a purpose; and it can hardly be accepted as a solution of the difficulties of this most important question. The enclosure of tracts known to have been, within a comparatively recent period, covered with Jungle, and therefore naturally fitted for its growth, appears to be the first step that should be taken in this matter. Such tracts can, it is believed, be secured for the purpose without much difficulty, though probably at some distance from the large centres of population; and the hilly portions of the country, which were more or less covered with forests in former days, afford an ample field for the selection of promising sites for this purpose, much excellent land lying amongst the hills, which is at present unoccupied, and only used for the grazing of the cattle of neighbouring villages.

A systematic examination of all tracts of the above description in all the Maidan talooks of the Province, should be carried out by the Forest Department, in communication with the Local Revenue Officers, and a careful selection made of those that are specially suited for reservation for the purpose under notice, their demarcation and enclosure being subsequently proceeded with as funds may be available therefor.

16. The experiments made in rearing sandal-trees in the Sandal-Reserves give fair promise of ultimate success, though some of them are stated to have failed. The subject is one demanding the utmost care and attention on the part of the Officers to whom these experiments are entrusted.

17. The proceedings of the Department in the Hassan Range, described in paras 35 to 40 under this section, appear to have been judicious; and every effort should continue to be made to gain the confidence of the people.

The attention of the Commissioner of the Division will be drawn to the subject of paras 39 and 40.

FIFTH SECTION.

Actual Yield of the Forests, Disposal of Timber, &c.

18. *In the Nagar Range* the fellings amounted to 1653 Teak logs, 1170 Teak poles, and 2944 Junglewood logs. The sales at the depôts realized Rs. 36,930.

Both the felling and sale of teak were largely below the estimated quantity. The felling of Junglewood was in excess of, but the sale of it, also, was below the Estimate. The prices realized were higher than usual.

The subject of para 44 should be closely watched. There appears to be no doubt that the practice of stealing and smuggling timber across the frontier, referred to therein, has been hitherto systematically carried on, to the serious detriment of the interests of Government, in collusion with the Subordinate officers of the Range.

The collections of Sandalwood amounted to 343 tons of good, and 102 tons of inferior wood, at an average cost of Rupees 33—3—11 per ton; or nearly Rupees 4 per ton in excess of the rate in 1871—72. The sales aggregated 312 tons of good, and 117 of inferior and waste wood; the rates realized being Rupees 373 per ton on the former, and Rupees 15 on the latter, shewing an increase of Rupees 55 per ton on the prices obtained in the previous year.

19. In the Mysore Range, the fellings amounted to 11,071 cubic feet of Teak, 11,804 of Junglewood, and a small number of Bamboos.

The difficulty of procuring carriage, owing to the prevalence of Murrain in the locality, prevented the collection of as large a quantity of wood, from the outlying forest depôts, as was anticipated.

The sales at the depôts realized Rupees 39,598, including the value of 7831 cubic feet of Teak delivered, free of charge, to the Palace authorities at Mysore. The large importations of timber into this Range from Coorg, and the neighbouring Madras Districts, must of course greatly interfere with the sales of the Mysore Forest Department in it; but, with the latter's local advantages, it ought to be able to dispose of as much as it really requires to get rid of, at remunerative prices, while it can give such rest, as is desirable, to the overworked forests in that Range.

The collections of Sandalwood amounted to 350 tons of good, and 29 tons of inferior wood, at an average cost of Rupees 39—2—0 per ton; or Rupees 2—3—0 less than in the previous year.

The sales aggregated 145 tons of good, and 23 of inferior wood, at an average of Rupees 396—5—7 per ton for the former, and Rupees 18—4—2 for the latter; shewing an increase of Rupees 22—5—8. per ton, as contrasted with the prices realized in 1871—72.

With reference to the remarks in para 52, the collection of old-wood alone should be strictly enforced, so long as a sufficient quantity of it remains in the jungles; and no trees that have not clearly arrived at maturity should be touched so long as this is the case. If the quantity of old-wood already past maturity is in excess of the annual maximum collections fixed by the Government of India, such should be reported, in view to the obtaining of special sanction, if necessary, for its being collected and stored, to prevent its injury by decay.

The subject demands close watchfulness and attention on the part of Range officers.

20. *In the Hassan Range.*—There were neither fellings, collection, nor sale of timber from the State Forests in this Range during the past year.

The collections of Sandalwood aggregated 70 tons of good, and 13 of inferior wood, at an average cost of Rupees 51—11—4 per ton, a rate considerably in excess of that prevailing in the other ranges; but which appears to be unavoidable owing to the necessity of sending the wood to Seringapatam for sale. The whole of the quantity collected was sold, the prices realized averaging Rupees 439—8—0 per ton for good, and Rupees 19—4—0 for inferior wood, being the highest obtained in the Province. Mr. Jellicoe's want of experience was, no doubt, detrimental to progress in this Range; but it is hoped that he will prove an useful Officer as he becomes better acquainted with his duties.

21. *In the Nundidroog Range.*—No timber was felled or collected in the State Forests; but a large number of Bamboos were sold, realizing Rupees 2731.

The collections of Sandalwood aggregated 94¼ tons of good, and 31 tons of inferior wood, at an average cost of Rupees 37—13—6, per ton, which was a little in excess of that of the previous year.

The sales aggregated 92 tons of good, and 28¼ of inferior wood, the prices realized averaging Rupees 328—0—0 and Rupees 3—5—0 per ton, respectively; or Rs. 47—10—4 per ton in excess of those of 1871—72.

The want of proper arrangement in the collection of Sandal in this range, is not creditable to the Range officer; while the singular difference in the rates obtained at the sales of the wood in this and the other ranges, appears to call for special enquiry, the peculiar circumstances of Bangalore warranting the expectation that higher rates would be obtained at it than at any of the other Depôts.

22. From the remarks in pars 59 to 62, it appears that the quantity of good Sandalwood collected during the past year was 757 tons; and that of this, 621 tons were sold; or 121 tons in excess of the maximum quantity ordered by the Government of India.

It further appears, that, of the total collections, 410 tons consisted of old roots, and decayed trees; the actual fellings having been 347 tons.

The orders of the Government of India on this subject have been repeated and peremptory; and the Conservator should have adopted measures to prevent *any* fellings but such as were required to bring the entire quantity of collections of old roots, and decayed trees, up to 500 tons. No doubt there might have been some difficulty in this; but the orders being imperative, no deviation from them should have occurred, without special sanction.

There can, of course, be no desire to leave wood, that ought to be collected, to decay and rot in the Jungles; and there will be no difficulty in obtaining due authority for its being collected and placed in security, on the submission of a properly detailed application with that object. Hitherto, the vagueness of the reports that have been received regarding the old-wood and roots referred to, has rendered it impossible to pass any but general orders regarding them; but the Conservator should now be prepared to submit a distinct proposal as to the course that should be taken to collect and store them for periodical sale, within the limit fixed by the Government of India.

DISTRICT FORESTS.

23. The difficulties attending the introduction of the District Forest Scheme sanctioned by the Government of India, of which an account is given in paras 63—64, no doubt seriously retarded its success during the past year. This result was, however, unavoidable in the first instance; and the continued exercise of caution, temper, and patience on the part of the Officers and subordinates entrusted with the control of the new arrangements, will be necessary to overcome, completely, the obstructions that must still be looked for in giving them full effect.

The measures adopted by the Conservator, as reported in these paras, appear to have been judicious and considerate; but there must clearly have been a want of proper effort on the part of the Revenue authorities to give due circulation to the scheme, and its objects and effects.

24. Eleven depôts for the collection and sale of wood from District Forests were opened before the close of the year; and the number had increased to forty depôts before the close of June in the current year. The cause of the delay that has occurred in the opening of the depôts in the Bangalore District, should be made the subject of a special report, if it still continues.

25. The principle on which the rates of sale of wood in the Depôts have been fixed, is quite in accordance with the instructions that have been issued to the Conservator on the subject; but it may be necessary to raise them somewhat by-and-bye.

26 The license-system has been abolished in 30 Talooks of the Nagar, and Ashtagram Divisions.

27. The statement of expenditure and receipts, given in para 70, shews that there was a loss to Government of Rupees 10,442 in the working of the scheme up to the close of the past year. This result appears, however, to have been quite unavoidable under the circumstances reported, and cannot be regarded as furnishing ground for its condemnation. The scheme can hardly fail of success when it is fairly in force, and the people generally have expended the stores of wood they have, in some localities especially, been, apparently improperly, allowed to fell and store for future use.

28. The total area of the unreserved or District Forests taken over by the Forest Department, in connection with this Scheme, up to the close of the past year, is given in the statement in para 71, as aggregating 129⅙ square miles.

GENERAL.

HEAD I.—FINANCIAL RESULTS.

29. In paras 72 to 83, abstract details are given of the Financial results in each Range for the year under report; and the General Financial Results are shewn in para 88 as follows.

I.	Realizations	Rs.	3,76,185
	Deduct realized on account of transactions of previous periods	"	3,657

Balance...	Rs.	3,72,528
Add, outstanding on account of the year	„	14,520
Value of the year's transactions ...	Rs.	3,87,048
II. Disbursements	Rs.	1,92,118
Deduct, disbursements on account of transactions of former years...	„	...
Balance...	Rs.	1,92,118
Add, Due for transactions during the past year, not yet disbursed	„	...
Real cost of past year's transactions ...	„	1,92,118
III. Net-result of year's transactions... ...	Rs.	1,94,930
Deduct Net-difference of Value of Stock ...	„	2,367
Net Revenue	Rs.	1,92,563

30. The outlay of the year was, on the whole, considerably within the sanctioned grant.

31. The estimated surplus, excluding the District Forests for which no provision was made in the original Budget, was Rupees 1,12,234. The actual surplus on the year's operations, omitting the District Forests from the account, was Rs. 1,42,236.

32. The realizations from the sale of timber fell short of the estimated receipts, under that head, by the large sum of Rupees 38,843; while those from Sandal-wood exceeded the estimate by Rs. 77,486. The causes of the short-coming in the one case, and of the excess in the other, are stated in the Conservator's report, and have been already noticed in this review.

In addition to the cash receipts for timber shewn in the above account, the Department is entitled to credit for the value, Rupees 10,768, of wood supplied to the Palace free of charge.

33. Of the minor items of receipt, grazing-dues appear to have realized nothing during the past year; and attention should be paid to the arragements necessary to secure a revenue from this source, and minor forest-produce generally, the receipts from the latter being at present quite insignificant. The subject was noticed in the remarks on the Report for 1871—72; but it does not appear to have as yet received the attention it demands.

GENERAL REMARKS.

34. The statements furnished under para 89, show that, at the close of the past year, (1) 3366, out of 3521 miles of road in Mysore, were planted up with avenue trees; the total number of which, as existing on 31st March last is given as 8,16,181; or about 243 to every mile of road. This number, if correct, provides for one tree to every 15 yards on either side of the roads. 1,27,873 seedlings and cuttings were planted out at a cost of Rs. 1,334 during the year; while 22,928 blanks, from death, remained to be filled up at its close; and (2) that 11,514 acres were planted up as

groves, almost wholly by the ryots, with an aggregate number of 7,33,445 trees, of which 1,41,411 were planted during the past year; the outlay from public funds, chiefly in watering the trees, being only Rs. 240.

The Nursery-return appears to be incomplete; but it is probable that the requirements of most of the avenues having been fully met, nurseries have ceased to be maintained. The point, however, requires enquiry.

CONTEMPLATED OPERATIONS.

35. These are stated to comprise, as sanctioned, the collection and sale of

I. Teak 25,000 cubic feet, and 1,000 poles.
II. Jungle wood 55,000 cubic feet, and 400 cartloads of branches and poles. Bamboos 50,000.
III. Sandalwood 582 tons; the extension of most of the existing teak, timber, fuel and sandal plantations and reserves; and the completion of demarcations and forest roads, and such minor-work as is required.

The District Forest scheme will also be pushed on as vigorously as may be practicable.

36. As already remarked, the collection of Sandalwood for sale during the year, must be limited to the quantity fixed by the Government of India, special application being made for permission to bring in and store, such further quantity as will clearly deteriorate if left in the Jungles.

37. The Conservator's commendation of the good services of Captain Jarrett, Deputy Conservator; Mr. Macpherson, Assistant Conservator; and Mr. King, Officiating Assistant Conservator, is noticed with satisfaction, as is also his favorable opinion of Mr. Jellicoe's administration of his range, and of his attention to his duties.

With reference to Mr. Hick's careless and inefficient performance of his work, which was the subject of complaint last year, a report of his proceedings will be submitted every three months till further orders, commencing from the 1st September next; and he will be warned that, if he fail to give satisfaction in future, his misconduct will be brought to the special notice of the Government of India.

38. In conclusion, I have much pleasure in acknowledging the labors of Captain van Someren, himself, during the year under report, which entitle him to my best thanks.

R. J. MEADE,
Chief Commissioner of Mysore.

BANGALORE,
28*th July* 1873.

CONSERVATOR'S REPORT.

Annual Report No. 1095 *dated* 10*th July* 1873, *on the Management and Conservancy of the Mysore Forests for the Financial year* 1872—73, *by* CAPTAIN G. J. VAN SOMEREN, *Conservator.*

I have the honor to forward the Progress Report of Forest Administration in the Province of Mysore for the year 1872-73. The report is followed by an appendix containing a sketch of the history of the Department since its formation in 1864, and of its operations up to the 31st March 1872. This appendix is submitted in accordance with the orders marginally noted, and is, I trust, full enough to afford a handy reference at any time regarding the growth of the Department, and the work done by it.

Chief Commissioner's orders No. 1 dated 25th April 1873
2 Government of India Proceedings in the Home Department 1674 dated 12th May 1873 communicated with Secretary's circular No. 1030 G-20 dated 29th May 1873.

INTRODUCTORY.

2. *Forest Legislation.*—The following notifications were issued—

A notification laying down the course to be pursued in the collection of sandalwood growing on Jaghire land.

A notification prescribing the roads along which alone wood and other forest products were to be imported into the Mysore District; and passports for such products were ordered to be discontinued.

The District Forest scheme was initiated; and Notifications of the new depôts opened and the rates to be paid for wood were issued as was necessary.

In the Sandalwood auction sale rules, a clause was added limiting the time of weighing out and stamping wood sold by auction, to two months from date of sale.

Section 35 of the Mysore Forest Rules was amended.

3. In the accounts branch, notifications prescribing the letters of advice to receive monies due to the Department, and laying down the procedure were issued. This was fully described in para 35 of this report.

SPECIAL

HEAD I—STATE FORESTS.

FIRST SECTION.

4. In the Nandidroog Range, the Handigundi Betta forest measuring 9,326, square acres were added to the lists, as was that of Tallagudde in Sorab measuring 5 square miles. The introduction of the District Forests scheme, as pointed out in the report for 1871—72, probably put a limit to any great extension of state Forests.

In Hassan, the forests blazed in 1871—72, to be added to the lists, are now worked by the Department under the District Forest scheme. The annexed tabular Statement is drawn up in the form prescribed in Government of India letter No. 26 1562 of the 6th December 1872, from the Department of Agriculture Revenue and Commerce.

AREA OF RESERVED FORESTS

Reserved Forests.	Area in 1871-72	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872-73.	
	sqr. miles	sqr. miles	sqr. miles	sqr. miles	
Lakkavalli	60	...	25†	35† Surveyed—error in approximate area corrected by survey	
Thegurgudda	20	...	...	20	
Danwass	...	unknown	...	unknown	Proposed
Ubrani	10	...	...	10	
Basanakoté	8	...	...	8	
Shankaragudda	9	...	...	9	Surveyed
Sakrebeil	10	...	...	10	
Chornayeddahalli ...	...	unknown	...	unknown	Proposed
Masrur ... ... / Ambligolla ... / Kumsi	16	...	...	16	
Chordi	...	unknown	...	not known	Proposed
Tallagudda	...	5	...	5	
Aynur Mariguddi ...	30	...	...	30	Surveyed
Begur	53	...	...	53	Do
Kakankoté	40	...	...	40	Do
Viranhossahalli ... / Metikupa ... ... / Hunsékupa ...	30	...	...	30	Partly surveyed
Bandipura	15	...	...	15	
Berambadi	15	...	...	15	Surveyed
Devaraydurga	18	...	...	18	
Bilikal	55	...	...	55	Surveyed
Maddagiri ... / Kandal	10	...	...	10	
Nandidroog	7	..	...	7	Surveyed
Killekaval	8	...	...	8	
Handigundi Betta ...	...	14¼	...	14¼	Surveyed
Vuyamballi	8	...	...	8	
Arkavati	3	...	...	3	
Devarabetta	10	...	...	10	
Evergreen					
Kabbinale	14	...	...	14	
Kaginerl	9	...	...	9	
Bajimalle	6	...	...	6	
Sunkekumri	6	...	...	6	
Total...	470	19¼	25	464¼	
Deciduous	435	19¼	25	"	
Evergreen	35	"	"		
Total ..	470	19¼	25	464¼	

SECOND SECTION.

Requirements of the People in the vicinity of State-Forests, in the matter of wood, &c., how provided for.

5. No remarks required.

THIRD SECTION.

Protection of the Forests.

6. In the appendix to this report I have pointed out that the establishment is not sufficiently strong to enable it to watch the forests, in such manner that the Range Officers can report, with confidence, that the forests are properly protected. It is also impossible for the department at present to attempt to protect the reserves from fires, I think that the fact that the exclusion of fires works real benefit to forests in India, may now be considered as proved, though strongly combated at one time. My opinion is founded on the reports I have from time to time seen regarding the Boree forests in the Central Provinces, and on my own observations of the growth of the Devaroydroog Forests in Mysore. But as I understand it, the Government has not yet issued definite orders on the subject, and I therefore bring the matter forward here, with the view of obtaining instructions whether definite proposals should be submitted for the consideration of Government. If such be sanctioned, a large increase of watching establishments will be unavoidable, which will benefit the forests, but without any return in money for many years to come.

7. The work now required from forest officers in Mysore, is far heavier than in former years; and though I was myself opposed at one time to the use of elephants in the department to enable officers to inspect their forests, I think it is now proper that these animals should be provided, and the matter will shortly be laid before the Chief Commissioner.

8. The following tabular statement in prescribed form, exhibits the number of Forest offences reported in the different ranges.

Prosecutions for breaches of the forest Rules.

Ranges	Number of Prosecutions.		Conviction obtained or still pending.		Remarks.
	No. of cases.	No. of Persons.	No. of cases.	No of persons.	
Nagar	170	433	156	366	One case in Nagar in which six persons are concerned still pending
Mysore	34	55	34	55	The highest punishment awarded was Rs. 500, the lowest annas 8.
Nandidroog	163	...	133	...	
Hassan	5	5	5	5	
Total	372	483	328	426	

9. As was the case last year the Nagar and Nandidroog Ranges still show a very much larger number of cases than Ashtagram, now divided into Mysore and Hassan. Mr. Macpherson's special attention was called to this difference last year; and the Revenue authorities also directed the attention of their subordinates to this subject. Under these circumstances it is somewhat difficult to explain the differences. As Mr. Macpherson says, it may be that the ryots of Ashtagram have a greater respect for the forest rules than ryots of the other divisions; or if this supposition be not correct, the only view to take is that the Revenue authorities neglect to take cognizance of offences of this nature. But I agree with him in thinking that this last supposition is a sweeping one which could not be maintained. The average of offences in Ashtagram, under different forest officers, has always been low. Of the 34 cases here reported, 27 were brought forward by the Forest, and 7 by the District subordinates.

10. The Nandidroog returns call for no special remarks except that the Assistant Conservator has omitted the "number of persons."

11. It is satisfactory to note that out of 372 cases reported in the Province, 328 were carried through to conviction, a result which shows that charges are not trumped up.

12. The Nagar Range takes an unenviable pre-eminence this year, owing to the position of some of the offenders. A wood-yard Mootsuddy was found guilty of trading in wood, and condemned to pay a fine of Rs. 500 under the provisions of Sections 29 and 35 of the Forest Rules. Owing to the nature of his offence, and other circumstances regarding his conduct, I ordered his dismissal from the department.

13. It had for some time been suspected that timber was smuggled from the border Talooks into the Bombay Presidency. At last on information brought forward by the Deputy Conservator, a joint enquiry by a Deputy Commissioner and Capt. Jarrett was ordered to be held. This resulted in the removal of a killadar from his appointment in the Police.

14. A third case was that of a man who had purchased the timber felled in the demarcation lines round the Sakrébail forests, and who was accused of felling trees within the reserve. This case was proved against all the parties implicated, with one exception that of the Ranger himself (Babu Row) who was however ordered by the Magistrate to be prosecuted criminally. Warrants were issued, but he fled the country and has not yet been apprehended.*

15. A fourth case, of removal of timber without a pass-port, the defendant was fined Rs. 200. A fifth case was similar to that mentioned in para 14, but was dismissed owing to want of sufficient evidence.

16. The case still pending is also one of smuggling teak poles from Shimoga. The dishonesty of the Ranger, and the loose practices of the Wood-yard Mutsaddi go far to account for this state of things. The whole of these cases occurred in one district Shimoga. Capt. Jarrett has taken great pains and trouble in the prosecu-

* NOTE —Since writing the above, information has been received of his apprehension and he is to be tried on 1st August.

tion of these cases, and deserves much praise for his vigilance. His range is enormous (15,000 square miles), and I sympathize with him in his complaints of the smallness of his establishments.

FOURTH SECTION.

Improvement and extension of Forests.

17. In Nagar no demarcation or compartment work was carried out.

In Nandidroog demarcation lines were cut round 10,783 square acres of forest, in two blocks; one of 9326, the other (a fuel reserve) of 1457 acres.

In Mysore eight miles of demarcation were cut round the Bandipoor Forest, and 10 miles of old lines round Aynur Marigudi were cleared.

In Hassan the lines round the Vijiyapura forests were kept clear.

18. Twelve jungles in the ghauts were inspected for cardamom cultivation, and five plots measuring in all 80 acres were set off in them.

19. *Roads*—On the 31st March 1872, 10 miles 296 yards of the Hannigiri road had been completed. During the year under report, 11 miles 223 yards of road in which four wooden bridges were put up, were completed at a total cost of Rs. 1735-15-8 or Rs. 157 per mile. The felling this year was heavier, and Rs. 236-8-0, spent on tools, is included in this year's average. The total cost of the 21 miles 519 yards has been Rs. 3229-11-4 at an average cost of Rs. 154 per mile, including eight bridges. The Chief Engineer has consented to the tracing of this road over the Buthina Byle, a nasty bit, being done by the Executive Engineer, carefully, as the high road from Shimoga to Nagar will come over this portion of our Forest road.

20. The work on the Hebbe road, completed during the year, was 3496 yards in which distance wooden bridges were put up. The total cost was Rs. 329-11-1. Including last year's length, we have here now 3 miles 1449 yards with 5 bridges, all of which were put up this year. The total average cost per mile all through has been Rs. 160-6-8. More work would have been done here but funds ran short.

21. In Mysore Rs. 39-8-0 were expended in improving old cart-tracks.

22. In Hassan 20 miles of road were traced viz, 10 miles from Arnee Betta to Bailoor, and 10 miles from Aloor to Setthalli. These roads were at once put in hand and will be completed during 1873—74.

23. *Surveys*—In Mysore, boundary survey maps were made of the Bégúr, Berambadi and Metikupa, of the Ainur Marigudi and Kakankoté forests.

In Nandidroog, the fuel plantations at Kumalagod, Chota and Bara Hossaharidi, and at Kadagodi were surveyed. So also were the Handigundi Betta forest, and Makli reserve; or a total in all of 14,587 acres in Nandidroog Range.

24. *Surveyors discharged*—The surveyors employed, were, in accordance with the instructions of the Government of India discharged on the 31st October 1872; or more work would have been done.

Plantations.

25. The tabular statement annexed is according to form. This form I must here remark gives a *totally erroneous* idea of the work done in Mysore Plantations and their cost. It is evidently intended that the actual area *planted* yearly, shall be shown in the "acres" columns. To reason from the figures now given that some of our plantations had cost us more than one hundred Rupees per acre would be *wrong*, for the following reasons. The official year in no way corresponds with our planting year. We plant out from July to September. In our timber plantations felling and burning go on from December to March. But this is not all. Twelve plantations out of twenty one, covering an area of 7973 acres out of 10,264 have been enclosed with hedges and ditches, and four plantations covering a total area of 2050 acres have been enclosed with fences. As the amount of available labour at any one spot at a given time is limited hedging and ditching could not progress if planting operations had been undertaken at the same time. Hence the real cost per acre cannot be gathered from the form now submitted, and will not be known from it till the whole of the areas enclosed are planted up. For example, take No. 4 Kakenkoté teak plantation. Here I have credited 1872—73 with 53 acres planted at a cost of Rs. 1592; but Rs. 266 were expended in preparing the land in 1871-72: while on the other hand, the cost of preparing nearly 100 acres in 1872-73 for the plantings of 1873-74 do not appear in the columns of the return for this year. The form of return may, most probably does, suit the circumstances of some parts of India, but is not applicable to Mysore. Another form, affording more information regarding the plantations, drawn up in accordance with the orders of the Government of India, conveyed in your No. 545 F of the 23rd September last, will be found in the appendices.

Area of Plantations

Plantations	Area in 1871-72	Total cost	Area added during 1872-73	Amount expended in 1872-73	Total area up to 1872-73	Total expenditure up to 1872-73
	Acres	Rupees	Acres	Rupees	Acres	Rupees
1 Lakkavalli (teak)	15	805	...	58	15	863
2 Sakrebeil	30	2409		134	30	2543
3 Hebbe	3	230	6¼	475	9¼	705
4 Kakankoté		462	53	1827	53	2289
5 Kumbarhalli (timber)	40	1117	66	1639	106	2756
6 Maddagiri			25	334	25	334
7 Alkal (Sandal) ...	71	702	...	33	71	735
8 Anapanakatte	237	543		16	237	559
9 Gurupura		406	30	770	30	1176
10 Karépura			5	202	5	202
11 Chota and Bara Hosaharidi (Fuel)	15	2360	46	1471	61	3831
12 Jadiganhalli	20	992	15	592	35	1584
13 Nellal ...	...	204	32	717	32	921
14 Kadagodi	...		10	521	10	521
15 Kumalgod		2247	25	1269	25	3516
16 Kurandhalli	118	754	3	373	121	1127
17 Karapanhalli	9	537	4	442	13	979
18 Marsandra ...	15	1114	44	587	59	1701
19 Appasandra ...	46	1601	21	630	67	2131
20 Santawarri (Euc) ...	4¼	726		170	4¼	896
21 Nandidroog	...	...	...	301	...	301 (avenues)
Supervising Establishment in Nandidroog Range.	...	..	..	334	...	334
Collections of seeds, Purchase of Tools and sundries for general use.		...	...	2670	...	2670
Total	623¼	17,109	385¼	15,565	1008¼	32,674

26. I will now enter into the details of each Plantation.

(1) *Lakkavalli (teak)* No extension is here contemplated till something definite is known regarding the operations of the Madras Irrigation Company. There are within the area 12,373 young trees. During last year 294 saplings died out, and the Deputy Conservator after a careful examination, came to the conclusion that the deaths had invariably occurred among the smaller saplings which were overshadowed by others, and that it was now time to commence thinning. This will accordingly be done. Pruning was carried out when required. A small area was consumed by fire which entered from the east across a broad nullah. But owing to the very light undergrowth, the only damage done was that a few trees were slightly scorched, from the effects of which it is hoped they will soon recover.

(2) *Sakrebail (teak.)* Here there are in all 24,698 saplings. In the course of two years 1000 trees had died. The plants are too young yet to affect each other; and the deaths are traced to various causes, some to falling trees, some to weeds. The growth of weeds here seems to be abnormal, and has always constituted a heavy item of the expenditure.

(3). *Hebbé (teak).* Here are 7432 young plants in 9 acres. The Deputy Conservator reports a failure in the nursery owing to seed not having germinated. A second batch was sown, and the seedlings being put out too late were watered. This, in addition to the cost of weeding, ran up the expenditure. In future should nurseries fail, the work will be left to lie over till the following year, as watering should not be resorted to.

The cost of these plantations, (2 and 3), both in Nagar, is very high compared with the expenditure in Mysore. In Nagar, seedlings have been grown in nurseries, and put out in large pits, a useless expenditure in the teak growing localities. The Mysore method detailed in the next para, will be introduced into Nagar.

(4). *Kakenkotè (teak).* Here 53 acres of land felled in 1871—72 were planted up in 1872—73, at regular distances of six feet. Seedlings were raised in nurseries in May, and the felled land pegged out with stakes to mark the spots where the plants were to be put out. Great care was taken with the lining to insure its regularity. On the first rains falling, the young seedlings, about 2 to 3 inches high, were put out at once. In spite of several drawbacks, the chief of which was the difficulty attending labour, the result has been most satisfactory, and Mr. Macpherson has done well here. A portion of the clearing was sown with gingelly oil seed, but want of labour prevented due attention being paid to this crop. When sold, it realized Rs. 76-7-4, but the experiment will not be repeated unless we can make sure of command of labour; in which case it will I think pay well. A little cotton was also put down, as it was thought that it would do well as a second crop to succeed the yelloo, but the want of labour has prevented a fair trial being given to these experiments. Nearly 100 acres have been felled for the plantings of 1873—74, and as the plantations extend, lines will have to be built for imported labour. The expenditure at Kakenkoté has been Rs. 37-5-1 per acre, including the felling of 71—72, or only Rs. 7-5-1 per acre in excess of the first year's cost now incurred at the long established Nellumboor plantations. The charges this year will be diminished, and under Mr. Macpherson's care the work will, I am sure, be well done.

(5.) *Kumbarhalli (timber)*, is in the Devaroydroog State Forests. Here 1800

trees were put down in 1870-71: and 8254 in 1871-72. The nurseries formed in 71—72, for the plantings of 1872—73, were, as I reported, too small (see para 28 of my last report). Planting in 1872-73 was therefore more limited than was desirable. The trees put out have however done well. Amongst them are upwards of 300 Jarrah (Eucalyptus rostrata), which when I saw them in May last were thriving, several being more than six feet high. Large nurseries are ready for the plantings of 1873—74, containing amongst others, some Jarrah, and a large number of Acacia melanoxylon. In this plantation pits must be dug if the trees are to grow at all. The climate and rainfall is not like that of the western ranges. The fellings of jungle to make room for timber trees were sold and realized Rs. 352.

(6.) *Maddagiri (timber)*, a small newly formed plantation which it is desirable to extend, if funds permit.

(7.) *Alkol (sandal)*, and (8) *Anapanakatte (sandal)*. These inclosures measuring 119 and 250 acres respectively, surrounded by good ditches and hedges, are both in Nagar. The Deputy Conservator writes thus: "It is satisfactory to observe how successful the plan of dibbling in the sandal seed under shade has proved in Nagar. The seeds dibbled in at the time the Reserves were first inclosed, are now from 6 to 8 feet in height, and the dibbling that was performed each year is shown by the heights to which the plants have grown. The plants of one year being distinct from those of the previous or succeeding year."

Experiments.

27. An experiment, which failed, was tried in these plantations. The ground was ploughed and sown with chili and sandal seed in the early rains. Strange to say not a single chili seed germinated. The sandal came up well, but almost all of it died out, being unprotected. Another experiment, also unsuccessful but from a diametrically opposite cause, was also tried. Sandal seeds were sown in a circle of cassia florida seeds. The cassia being a quick growing and easily reared tree, it was hoped would prove a good nurse to the sandal. All the cassia germinated and grew well, not a single sandal seed came up. These results would be ludicrous, if they were not disappointing. Sandal is not antagonistic to chili, for they have been grown together elsewhere; and I cannot believe yet that cassia is antagonistic to sandal. It is hard to believe that all the chili seed, in one place, and all the sandal seed in the other was bad.

28. But at (9) *Gurupura* in Mysore, our experiments were more felicitous. Here the enclosure measures 2000 acres, and a large quantity of seed was dibbled in. But an interesting experiment was here carried out with fair success: 30 acres of land were cleared of all bushes and trees, ploughed, and togré (cajanus indicus), sown in lines at six feet a part. Down the centre space between two lines of togré, sandal seeds were dibbled in at about two inches apart. The seeds germinated freely. During the hot weather many died out, but as they were close together, the ground is now fairly covered with young plants some of which are now over two feet in height. The togré proved a good nurse. It was hoped that the crop would be remunerative, but throughout the whole country side togré last year was blighted. It is however a biennial, and is still standing and promises well for this year. It has answered its purpose hitherto, and is again being tried this year in fresh clearings. The lines this time will however be run North and South, instead of East and West, so as to throw as much shade as possible. The advantages of this system, which is far more expensive than dibbling, is that the young trees grow more rapidly, and the ground is more evenly covered and more regularly stocked. It is early yet however

to draw conclusions as to the method to be adopted in future for the rearing of this valuable wood.

(9) *Karepura. Sandal.* A small plantation conducted on the same principle as that at Gurupura, but in another talukh, with a heavier rainfall and on deeper soil.

29. From (11) to (19), are fuel plantations, established for the supply of fuel to the Madras Railway. As it was important that the fuel when grown should be within convenient distance of the stations, I was limited as to choice of land, and the expenditure will, for this cause be higher than perhaps would have been the case, had I been able to look only to one point, the quality of the land. But I think I have now grounds for expressing myself in a more hopeful manner regarding the fuel plantations, than I could last year. The plantations are still very young, the land not being made over to the department till quite the close of 1870: and in some cases not till a year later.

(11) *Chota and Bara Hossaharidi.* These together measure 2000 acres, and have been surrounded with good hedges and ditches. The teachings of experience here are clear. If the trees are to grow, they must be put out in pits; and here, as elsewhere in these plantations, all pits are now dug to an uniform size of 3 feet cube. The plantings of last year are looking well, and the preparations for the plantings of 1873—74, have been carefully looked to. In parts of the plantation, the spontaneous growth is *very good*, and thousands of young acacias chiefly leucophloea, are springing up.

(12) *Jadiganahalli.* This is the oldest and worst of our plantations. It is that on which our experience was gained, and on which many experiments were made, with but unsatisfactory results. The trench system, once thought highly of, was fully tried here, where 50 *miles* of trenches were excavated and sown. I can only say, I wish it had never been tried. It may do well elsewhere, but is, I am persuaded, unsuited to Mysore. The plantings here of last year in large pits, have been successful and the plantation will in the end do well, though always burdened with the sums spent on it, before we found out the only way to grow trees in the dry climate to the east of Bangalore. The object aimed at was economy, but unhappily it proved to be false economy. The plantation measures 395 acres.

(13). *Nellal.* Measures 1485 acres. It was opened in 1872—73, on the large pit system, and is doing well.

(14). *Kadagodi.* Measures 689 acres, and was also opened last year. The planted portion is doing well; a portion of this enclosure, which was covered with small thorny bushes, and useless scrub among which no young trees could be found, was given free of assessment to a ryot, to sow with gram. He to be at all charges, and to give the Department half the crop. This was done, and the half crop sold for Rs. 175. Tree seeds were sown in between the lines of gram, they germinated, and during the hot-weather almost all died out. Still a portion of land has been well cleared, at a money *gain* to the Department of Rs. 175.

(15). *Kumalgod.* Measuring 1115 acres. Portions of this plantation are fast getting covered with acacias self grown. Here the pitting system is being also carried on, with success so far.

(16). *Kurandhalli.* Covering 324 acres. This plantation is not quite so good as the others, but is worth keeping up, and will in the end pay well.

(17). *Karapanahalli.* Measures 360 acres according to survey. I believe this is incorrect, being far too small, and the plantation will be again measured. It is doing well.

(18). *Marsandra.* Measuring 424 acres, is also doing well.

(19). *Appasandra.* Consisting of 672 acres is also progressing, not quite so well as the majority.

(20). *Santawari.* (Exotic). This plantation is in Nagar. It has again been unsuccessful. It is superintended by the gardener in charge of the small chinchona Plantation close by. This man, without instructions from the Deputy Conservator put down the seeds, and did not report his having done so to Captain Jarrett, who on his next visit to the plantation, found that there were upwards of 4400 seedlings, which it was necessary to put out at once in the Plantation. This was done, but with a result which was bad, for on the 1st April 1873, but 176 were alive. Of the planting of 1871—72, there were alive altogether only 319 Australian exotics. Thus we have but 525 of these trees in Nagar. I had not an opportunity of visiting this range last year, and can yet report no more fully of the reasons for this ill success. We have had far better results in Nandidroog, and this interesting part of our work will receive close attention this year.

30. It is necessary here to explain a discrepancy which will be noticed, between the expenditure on plantations as given at foot of the tabular statement preceding these paras, and the expenditure as given in form No. 21 summary of revenue and expenditure. From the latter sum (Rs. 16,215) must be deducted Rs. 650 spent in Hassan in preparing for 1873-74; no land being actually planted up, Hassan does not figure in the tabular statement.

No. (21) *Nundidroog.* Here no plantation exists. The money was spent on avenues.

31. All fuel plantations (with two exceptions) and two of the sandal plantations are enclosed with capital aloe hedges and ditches. A contract has been entered into this year for surrounding the whole of the fuel plantations, with segékai (soap nut). The produce of this bush will pay well, while giving us capital hedges, in addition to what we already have

32. In Nundidroog, there were ready pitted (for the reception of plants in 1873-74) on 1st April 1873, 300 acres of land, and I have every reason to be satisfied with the work Mr. King has carried out since he took charge from Mr. Hunter in July 1872.

33. *Forest huts*—Two huts were built in the Mysore Range, and those in the Nagar Range were kept up.

34. *Forests protected from fire*—As I have already reported, the Devaroya droog Forest has not been burnt for seven years. No attempts have been made to protect the large teak forests. We cannot do so with our present establishments, and I have already referred to this matter in my para 6,

35. *Hassan Range.* At *Vijiyapoor* within the limits of the land belonging to the Department 50 acres were thinned out, all useless wood being cut and sold, and the ground prepared to be stocked throughout with timber trees. We disposed of much firewood, and realized thereby the sum of Rs. 368-12-0, the whole of it was taken by the people of Arkalgod, (the chief town of the talukh), distant five miles. The selling rate was eight annas a cart-load. These operations of ours did good in two ways. While we recovered a large proportion of our expenditure, not only was indiscriminate felling put a stop to in our land, but the adjoining scrub jungle was spared to a great extent. Our prices were low enough to attract purchasers; and to further conservation, I requested Mr. Jellicoe to sell wood by head-loads, so as to supply all comers except the very poorest. Those who could not buy at all, were allowed to continue to supply themselves from the open forests, but we succeeded in attracting a number of people, who after supplying their own wants, carried off small quantities of wood for sale.

36. Though we received in money no large sum, a satisfactory commencement has here been made in inducing people to come to us for our thinnings, and a very important part of our duty, viz, conservation of existing jungle in the maidàn talukhs was carried out, in an indirect manner.

37. The *Hanjellige* sandal plantation was ditched and surrounded with a hedge.

38. At *Baktarvalli*, also within the limits of a forest made over to us, 50 acres were marked off for a teak plantation to be opened in 1873-74. About 20 acres of this area will it is hoped be planted out..

39. Our operations in Hassan are still watched with suspicion by the people, but in the Maharajdroog and Arkalgod talukhs, I am able to report that we are gradually gaining their confidence. We have to move with great caution, to avoid indefinite delay arising from complaints made to the Revenue officer, and which are perforce obliged to lie over for sometime unsettled, owing to the pressure of other work on the Deputy Commissioner.

40. In the north of the Hassan talukh at Salgami, we were prevented doing any thing, owing to the opposition of the ryots who claimed the land we had selected as gomal, or grazing. After a long delay, it was found that the claim was not good; but we have lost a whole year. I do not intend my remarks to be taken as cavilling at revenue officers. The department has always been aided by them when possible, but I would venture to suggest that for some portion of the year, at least, an European Revenue officer should be directed to accompany the Forest officer, and settle all claims at once and finally.

FIFTH SECTION.

Actual yield of Forests, disposal of Timber &c.

41. *Nagar Range.* The fellings in this range are given below:—

Teak logs	Jungle logs	Teak poles
1653	2944	1170

42. Felling of reserved kinds of trees were continued in holdings in the Sorab talukh. It is satisfactory to be able to report that in the Cadoor district felling was very carefully supervised. Great attention was paid to the trees felled that they were fully matured, and many trees which had been blown down were brought into depôt.

43. Collection at depôts and sales.

Depot	Collection of timber			Cost per cub: ft.	Sale of timber		Rate	Amount	Remarks.
	Description	No of logs	cub: ft.		No of logs	cub: ft.			
Lakkavalli ...	Teak ...	224	6154	2 to 4 annas	318	6242	0-15-11	6209	
	Jungle ...	966	21934		659	18051	0-12-3	13845	
Shimoga ...	Teak ..	9	90	Do	219	3739	0-12-4	2883	
	Jungle ...	19	213		43	556	0-11-5	395	
	Teak poles.	1170	„		1213	...	0-14-1	1075	
Sakrebeil ...	... ...	...	...	...	115	2930	0-12-4	2265	Jungle
Sorab ...	Teak ...	896	4602	3 to 4 annas	1170	5511	0-13-7	4680	
	Teak poles.	199	„		199	...	0-13-4	165	
	Jungle ..	2836	17923		1433	8205	0-10-2	5250	
	Jungle poles.	3	„		3	...	1- 0-0	3	
Sassavahalli ...	Teak ...	23	58	Four annas	...	...	...	...	
	Teak poles.	1539	...						
Confiscated. Shimoga.	Jungle ...	12	78	...	12	78	0-11-5	55	
Confiscated. Sakrebeil.	Teak ...	5	48	...	...	...	...	...	
	Jungle ...	77	814	...	...	...	...	...	
Unclaimed. Lakkavalli	Teak ...	3	14	...	...	...	...	...	
	Jungle ..	1	9	...	...	...	...	...	
Unclaimed. Shimoga.	Teak ...	4	41	...	1	4	1-3-0	4-12-0	
	Jungle ...	26	204	...	...	...	...	...	
	Teak poles.	20	...	...	5	...	0-4-0	1-4-0	
Unclaimed. Sakrebeil.	Teak ...	1	6	...	...	...	...	...	
	Jungle ..	5	43	...	...	...	...	...	
In the Sorab kans 90 cart loads of Jungle branches.					...	...	...	98-8-0	
	Total.	8128	52,231	...	5390	45,316		36,930	

Increase in wood sold by retail.

44. There has been a marked increase in the quantity of timber sold by retail, especially in Junglewood, of which in previous years we sold little or none. It is thought that part of the reason why our sales in timber have for some time been but small, has been that owing to the smuggling of timber, (in which men in both the forest and revenue departments, and holding good positions, were concerned), the markets in the Bombay presidency were well stocked to our detriment. These frauds have been checked, and I am inclined to think that our sales of Junglewood will now be better.

45. Less teak by 17,987 cubic feet than was estimated for was felled, but in Jungle wood there was an excess of 23,217 cubic feet. In our sales of teak, there were sold less than estimates 33,430 cubic feet, of jungle wood 12,129 cubic feet. This was owing chiefly to the very careful selection of teak, and to the difficulty in obtaining carriage in the Sorab talukh, which resulted in our sales being later in the year than we anticipated, a portion of the wood not having been sold till April 1873. But although the sales were altogether 45,559 cubic feet less than estimates in quantity, the money realizations were less by only 19,170: showing that the rates obtained were higher than usual.

Quantity sold much less, rates good.

46. The next statement shows the quantity of sandalwood collected &c.

Collections, in tons, at stores.	Total cost per ton.	Tons sold.	Rate.	Amount in Rupees	Remarks.
243	33—3—11	312	373	1,16,563	Good wood
102		117	15	1785	Inferior wood

47. Sandalwood which had been left at the old pattadis, was carefully examined this year by Captain Jarrett, and the good wood retained and sold at stores, while the inferior wood was at once sold off. The rates for collection were more by nearly Rs. 4 per ton than last year, while the selling rates rose by Rs. 55 per ton for the good wood

48. Mysore Range. Fellings.

Teak.		Jungle.		Branches and poles.				Bamboos.	Remarks.
				Teak.		Jungle.			
Logs	Cubic feet.	Logs	Cubic feet.	No.	Cubic feet.	No.	Cubic feet.	Number.	
361	9717	401	10,614	427	1354	124	1190	911	Average scantling of teak 27; and of jungle wood 26 cubic feet.

49. As the sales of the previous year had been bad, the fellings were limited this year, so as not to have too much wood on hand; and the contractors were urged to cart in old wood of former years still lying out. Good work was done in collecting outlying wood at forest depots, where it is stacked and protected from fire. It was hoped that more work of this kind would have been accomplished, but, for the comparatively small quantity of work done, the contractor cannot be blamed. In the early part of the season murrain was so bad in the Heggadévankoté talukh that the cartmen flatly refused to go there with their cattle. There is a very great demand for carriage in this Range, and making fair allowances for difficulties, the work cannot be called unsatisfactory.

50. *Collections at depôts and sales.* I wish here to bring forward prominently, that the large importations of wood into this range from Croog, from the Wynaud,

and from private forests leased out to wood-merchants in Madras, cannot but affect our sales. The quantity of wood so imported during 1872-73, was upwards of 110,000 cubic feet of teak, and 16,000 of jungle wood.

Depôt.	Collection of Timber.			Total cost per cubic feet.	Sale of timber.		Average rates.	Amount.	Remarks.
	Description.	Logs	Cubic feet.		Logs.	Cubic feet.			
Mysore ...	Teak.	463	12,947	0-7-4	597	16,119	1-4-1	20,194	† From the old kraal.
	Poles & Branches	549	1771		557	719	0-14-3	642	
	Jungle.	637	15,886		973	23,528	0-12-8	18,595	
	...	1649	30,604		2127	40,366	0-15-8	39,431	
Antarasanté ...	Teak pieces.	...	...	...	† 643	...	...	120	
Goondalpett ...	Bamboos.	...	...	...	8 Cartloads	...	5-0-0	40	
Hoonsoor ..	Jungle.	2	19	0-3-4	2	19	0-5-10	7-4-0	

51. *Teak given to the Maharajah*—Of the 16,119 cubic feet of teak sold, 7831 feet were, by order, given free of charge to the Palace authorities. The money due thereon, not being paid into the Treasury, produces an apparent decrease of revenue.

52. Collection of Sandalwood

Collection in tons at stores.	Cost per ton.	Tons sold.	Average rate per ton.	Amount in Rupees.	Remarks.
350	39-2-0	145	396-5-7	57,471	Good wood.
29		23	18-4-2	420	Inferior wood.

In this range, with the exception of a small quantity of green wood felled wrongfully by a contractor (see para 49 of appendix), the entire collections have been of decayed and dried trees and of old roots left in the ground from former years. Three fourths of the total collections came from two talukhs, Heggadévenkoté and Periapatam. The Assistant Conservator calculates, and I am inclined to think his calculations are correct, that no fresh trees need be felled in these talukhs for the next three years, if the present quantities annually exposed for sale are not exceeded. He further thinks that by the time the other talukhs are fully worked, no green tree need be felled for the next ten years under present circumstances. In this latter statement, I cannot yet agree. Ten years is a long time; but there is no room for doubt that there is a very large quantity of old wood outlying which it is true economy to bring in, while living trees are left to mature.

53. The range officers have always found a difficulty in forcing Manégars to bring in wood from distant points, and the wilder places. This year the collection has been given out on contract, and, the work being one easily checked, with good success. The rates for collection were Rs. 2—3—0 per ton cheaper, and the selling rates were Rs. 22—5—8 higher than in 1871—72.

54. *Hassan Range.* No timber was collected here from the State Forests for sale.

55. Sandalwood collected and sold.

Collection in tons at stores.	Cost per ton.	Tons sold.	Average rates per ton.	Amount realized.	Remarks.
70	51—11—4	70	439—8—0	30,777	Good wood
13		13	19—4—0	250	Inferior wood.

Though collected in Hassan, the whole of the wood was sent to the Seringapatna Kóti in Mysore for sale. There is no Kóti in the Range, and I do not advocate the building of one. The rates for carriage are considerably higher than in the other ranges, but if a Kóti was built here, the establishment required for it, would amount to Rs. 804 per annum; exclusive of the original cost of the building which would certainly be not less than Rs. 12,000. The building would from time to time require repairs and if to this the interest on the capital be added at 5 per cent, we should actually be spending much more money than at present. The selling rates are much higher than those of any other range. It was sold late in the year when the market had risen considerably.

56. Mr. Jellicoe took charge of the range in April 1872, when he laboured under great disadvantages. He could speak neither Hindustani nor Canarese, his subordinate establishment was appointed on the same date as he was, and the sandal manegars took advantage of these circumstances to work very slowly. He succeeded in getting in his wood, but only just in time for sale before the year closed. His entire ignorance of his range, and of all Indian things, was also against him. Taking all this into consideration, I think he has done well, though naturally better results will be looked for this year.

57. *Nandidroog Range.* No timber was felled here for sale, out of the State Forests. A large number of bamboos were however sold from a depôt established in the Bangalore Fort.

Description.	Number collected.	Cost.	Sold.	Amount realized.	Remarks.
Bamboos.	42,567	1853	42,640	2731	

58. Collections of Sandalwood and sales.

Collection in tons at stores.	Cost per ton.	Tons sold.	Average rates.	Amount in Rupees.	Remarks.
94¼	37-13-6	92	328	30166	Good wood.
31		28¼	3-5-0	94	Inferior wood.

The work in sandal collection in this Range has not been well managed. In para 47 of my report on 1871—72, I gave reasons for the poor sales of that year. To get rid of some wood lying out, a tender to purchase all billet wood at a fixed rate was accepted and Mr. Hicks was urged by me to insure the closing of this contract by the 31st of March 1873. In this he has failed, and there are still forty candies (10 tons) due to the purchaser. Further remarks on the working of this range will be found further on in my paras 66 and 96.

The range is still without a proper kóti. One is however in course of erection, though it will not I fear be finished till the close of the year. The selling rates have risen by Rs. 47—10—4 per ton, but they are still lower than they would have been, if better arrangements had been carried through in collection.

59. *Reasons for large collection of sandal wood.* It had for some time been noted in the Department that a very large quantity of old roots and decayed sandal trees were either in the ground, or standing uselessly in the talukhs. Repeated orders to the Manegars having been but imperfectly carried out, the subject attracted the attention of speculators, who offered to purchase the right to collect all old roots and dead trees for various periods, at certain rates. These were all refused, and under orders from the Chief Commissioner, the department undertook the work of collection by contract. The Mysore Range was selected as the best to commence in. The result has been most satisfactory as far as regards working.

60. The Government of India in its orders on the Mysore Forests Progress Report for 1871—72; directed that the maximum collection of sandalwood in Mysore was not to exceed 500 tons without special sanction. This, I, of course, understand, means that 500 tons of wood fit for sale in the market should be collected. I have in my para 47 of the appendix to this report, shown that under the present method of collection it is found on the whole advantageous to bring into the stores a certain portion of wood which cannot sell at any but low prices. The total collection during the past year has been 932 tons out of which 175 tons are outside wood, leaving 757 tons of good wood brought to stores.

61. Of this quantity (757 tons), 410 tons consist entirely of old roots and decayed trees collected in the Mysore and Nandidroog Range. The total quantity of good wood sold was 621 tons.

62. It is necessary that I should now point out my reasons for thus overstepping the limits laid down by the Government of India, and I trust it will be made clear that the spirit of the orders has not been offended against. The Government feared, that, tempted by high prices, the Department might be led to look too much to present gain, and overwork the sandalwood in the country, that it might, if not

checked, kill the goose that laid the golden eggs. But it became clear to local officers, not only of the Forest Department, that much money's worth was lying not only idle but actually deteriorating in the ground, and that if this could be brought in and sold, very much growing wood might be left standing with positive benefit. While therefore the quantity of *new* wood felled was within the limits laid down by Government, by 153 tons, 410 tons of wood have been brought in, which if left out would next year have been of less value than it now is. Again, when I sanctioned the issue of contracts for the collection of this old wood, though I was aware that a large quantity would eventually be collected, I confess that judging by my former experience of contractors, I did not expect to see so much work done within the time. In this way my calculations have been falsified, and I bring forward the matter now prominently, with the view of affording the fullest information, so that the Government may, if it sees fit, issue fresh orders on this subject.

DISTRICT FORESTS.

63. On the 12th March 1872, the Government of India sanctioned the District Forests scheme, for the better management and preservation of the district forests in the country. This scheme necessarily added largely to the quantity of work demanded from the Assistant Conservators, and, as it was entirely new to all concerned, some little time elapsed before it could be considered as fairly started. Men had to be carefully selected to fill the post of Circle Mutsuddies, and it was not an easy task to commence even felling operations. Directly it became pretty clear to the rural population that the tendency of the scheme was to put a stop to the very great opportunities hitherto enjoyed by them of procuring wood at merely nominal rates, they offered both passive and active opposition to it. In many places it was found to be exceedingly difficult to get labour to fell wood for the supply of the small depôts. This difficulty having been partially surmounted, it proved still harder to obtain sufficient carriage. In parts of Nagar, the transport of wood depends entirely on the rather limited supply of carts available. The ryots were indisposed to hire out their carts to help our need: and they very naturally under the circumstances sent in applications for wood to be felled on the license system, so that they might lay in large stores before our operations were sufficiently advanced to justify our applying for the abolition of the license system. The District officers could not in justice refuse to entertain all such applications on the broad ground, that the applicant was simply laying up a store for the future. Enquiries were made, and several applications refused, but very many could not but be granted. Once granted, the wood was quickly felled, but the carts throughout the whole country side, were then required to carry in the wood so obtained, and we had to enter a market hostile to our operations.

64. Several complaints were made against the department, not that our officers had in any way oppressed the ryots by seizing labour or carriage, but that orders had been issued which were contrary to rule, and that we had interfered with undoubted rights. This was specially the case in Nagar. It is very satisfactory to me as the representative of the department, that not one single complaint could be substantiated. In Hassan, operations came to a stand still in Arkalgod and Maharajandroog for a time. A very large number of ryots went into Hassan, and complained to the Deputy Superintendent of various acts alleged to have been committed by the Forest Department. The matter was sent on to me, and Mr. Jellicoe being inexperienced, I visited the spot as early as practicable, having given long notice of my coming to all concerned. I met upwards of 200 men at Bartoor, and spent several

hours in going over the alleged complaints. The results were reported to the Chief Commissioner. I found that they were not only ignorant of what the District Forest scheme was, but even of the rights which they legitimately possessed. At Arkalgod I met upwards of 150 men, and left them perfectly contented with the system about to be introduced. It was explained to them several times, and the reasons for its introduction were fully gone into. A paper written in the most simple terms has since been drawn up and distributed far and wide; it tells the ryot exactly what his privileges are and what rights the Government has reserved. This paper will be stuck up on the walls of chuttrums, and in the verandahs of temples and other public places in the chief villages of every talukh. It is not to be kept by Shanbogues, but to be made as public as possible.

65. The reiterated orders of the Government of India, that the greatest caution is to be exercised in the introduction of this scheme, has been steadily borne in mind; and the Officers of the department, more immediately interested in the scheme, have carried out these instructions most carefully.

66. *Depôts opened before close of year.* In the Mysore Range, ten depôts were opened in three talukhs on the 6th December 1872. One depôt for two talukhs on the 12th March 1873; or eleven depôts in all.

67. *Depôts since opened.* In the Nagar Range twenty two depôts were opened on the 12th May, and in Mysore three depôts for the supply of four talukhs were opened on the 13th May 1873; or twenty five depôts, making a grand total of forty depôts now open, as in Hassan four depôts more were opened on the 23rd June. I regret to be obliged to report that the work has not been so good in the Bangalore District of the Nandydroog Range. Two depôts are stocked, but though frequently urged to do so, I have not yet been furnished by the Assistant Conservator here with sufficient detailed information to justify my applying for sanction to the opening of these depôts, and the consequent abolition of the license system in the talukhs concerned.

68. The rates at which wood and bamboos are to be sold is experimentally calculated on the following data. Actual cost of felling and carting per bandyload, plus one rupee for supervision, plus one rupee to compensate the department for the loss of seignorage on the old license system. These rates are as low as they can well be. They allow of but a slender margin for profit; but in submitting the scheme, I pointed out that the department looked far more to the indirect gain in the preservation of the forests than to a gain on the sale of wood.

69. *License system abolished*—The license system has now been put a stop to in the sixteen talukhs of the Cuddoor and Shimoga districts; in nine out of twelve talukhs in Mysore District, and in five out of ten talukhs in Hassan.

70. It is premature yet to attempt to offer an opinion on the working of the scheme. The expenditure and receipts at close of 1872-73 had been as follow:—

Expenditure.			Receipts.
Nuggur	5276		0—0—0
Mysore	6417		4101—0—0
Hassan	1157		0—0—0
Nundidroog	1693		0—0—0
Total	14543	Total	4101—0—0

The pay of both Mr. Dickinson, and Mr. Hutchins though appearing under this head in the annual summary of Revenue and expenditure, is deducted in the figures shown above; neither of these officers is employed in the district work as yet. The figures exhibited include the working expenses and the subordinate establishments employed. As a matter of course the expenditure at first will be much in excess of the receipts.

71. I now give, in the prescribed form, the areas of unreserved forests at present.

Area of unreserved Forests.

Unreserved Forests.	Area in. 1871-72	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872 73.	
	sqr. miles	sqr. miles.	sqr. miles.	sqr. miles.	
In Sorab talukh ...	55½	...	...	55½	Survey numbers taken up over the Talook 35,525 acres in all.
Mallavalli	...	20	...	20	
Tharalu	...	2½	...	2½	
Miralawaddi	...	7⅓	...	7⅓	
Kengal	...	3½	...	3½	
Chennapatam	...	3½	...	3½	
Kungal	...	9	...	9	
Makli	...	2⅓	..	2⅓	
Hone Betta	...	10	...	10	
Hulkunda Nagawara ...	...	6	...	6	All in Hassan approximate areas only, which may be altered when eventually surveyed.
Gopi Gudde Taggu ...	...	½	...	½	
Burthoor Forests ...	...	4	...	4	
Margalu	...	5	...	5	
Totals...	55½	73⅔	...	129⅙	

GENERAL.

HEAD I. FINANCIAL RESULTS.

72. Nagar Range.

Receipts.	Estimates	Actuals.	Expenditure.	Estimates.	Actuals.
i Sale of Timber brought to Depots—			*A. Conservancy and working.*		
Timber ...	45,000	33,765	i Timber Expenses— ... Timber	21,600	6855
Sandal wood ..	64,000	118,349	Sandalwood		11125
			ii Purchase of tools &c. ...	400	7
ii Do. removed by purchasers...	6000	7523	iii Feed and keep of cattle ...	...	774
v Grazing dues ...	300	5	iv Rent of leased Forests ...	200	...
vi Sale of Fruits and minor Forest produce	500	413	v Charges connected with the collection of Revenue on grass &c.	100	...
vii Do. Confiscated Timber ...	1000	826			
Carried over ...	1,16,800	1,60,881	*Carried over* ...	22,300	18,761

Brought forward...	1,16,800	1,60,881	*Brought forward...*	22,300	18,761
viii Fines and forfeitures ...	100	84	vi Plantations	2000	1071
ix Miscellaneous Receipts ...	1000	198	vii Forest work	300	...
			viii Forest Survey	300	50
Collection from District Forests...	.:.	23,573			
			ix Experiments to test the value of timber	200	60
Total ..	117,900	184,736			
Deduct Expenditure ...	68,152	50,811	x Communications and buildings	1500	2711
Balance ...	49,748	133,925	District Forest working charges	12,000	2587
Add					
Out-standings on account of the year. 3215			Total ..	38,600	25,270
„ Value of stock at the close of 1872-73. 62837		66,052	*B. Establishment.*		
			i Salaries	18,828	18,820
			ii Travelling allowances ...	2200	2119
Total...		199,977	iii Contingencies	610	603
Deduct			Refunds ...	...	35
Realizations on account of out-standings of previous years. 116			District Forest Establishment	7914	3964
„ Value of stock at the close of 1871-72. 76902			Total..	29,552	25,541
		77,018			
Net Revenue...		122,959	Total Expenditure ..	68,152	50,811

73. *Receipts*—Under various heads a total increase of Rs. 79,445, and a total decrease of Rs. 12,609, being a net increase of Rs. 66,836.

Increases.—Under head I, "*Sale of sandalwood,*" Rs. 54,349, owing to larger sales and better prices than were contemplated. Under head II, "*Wood &c., removed by purchasers,*" Rs. 1523. Under IX, Miscellaneous "*Collections from district forests,*" Rs. 23,573, being the realization of the last six months of 1872–73 and not entered in the estimates for that year, as the orders to do so, had not been received when the budget was framed. Regarding the increase under sandalwood, I have written fully in my paras 59 to 62.

Decreases.—Under VI, "*Sale of Forest Products,*" Rs. 87; under VII, "*Sale of confiscated timber,*" (an item impossible to estimate accurately) Rs. 174; under head V, "*Grazing dues,*" Rs. 295, the subject not yet taken up owing to press of other work; under head VIII, "*Fines and forfeitures,*" Rs. 16: and under "*Miscellaneous,*" (an arbitrary item) Rs. 802. The main decrease is under head I, "*Sale of Timber,*" reasons for which have been already given, see my paras 44 and 45.

74. *Expenditure.*—A. "*Conservancy and working,*" total decrease Rs. 15,545; total increase Rs. 2015; savings Rs. 13,330. B. "*Establishments,*" total decrease Rs. 4046; total increase Rs. 35; savings Rs. 4011.

A, Savings	...	...	...	...	13,330
B, „	...	...	...	...	4011

Total Rs. 17,341; saved.

Decrease.—A. By smaller fellings of timber chiefly, Rs. 3620: under heads II, IV, and V, Rs. 693, the expenditure not being required: under VI Plantations, Rs. 929 unexpended: under VII, VIII, and IX, Rs. 690: and under X *(a)* "*District Forests*," Rs. 9413, as the establishments were not fully raised; and hence from this and other causes detailed in my para 63, work was delayed.

B. Under I, II, III, a total trifling saving of Rs. 96: under District Forest establishment Rs. 3950, the establishments not having been fully raised.

Increases—A. Under III, "*Feed and keep of elephants &c.*," Rs. 774, for keep of an elephant not estimated for; and under X. "*Communications and buildings*," Rs. 1241 spent altogether on account of roads.

These increases were met by transfers to which sanction was accorded during the course of the year.

75. After adding and deducting the necessary sums for the differences in outstandings and value of stock at beginning and close of the year, the net revenue of the Range was Rs. 1,22,959.

76- Mysore Range.

Receipts.	Estimates	Actuals.	Expenditure.	Estimates	Actuals.
i Sale of timber brought to Depots.—			A. CONSERVANCY AND WORKING.		
Timber	50,000	29,238	i Timber Expenses—		
Sandal wood .	32,000	57,781	1. Timber	35,060	14,737
ii Do. removed by purchasers.	2000	134	2. Sandalwood		18,296
v Grazing Dues	300	„	ii Purchase of Tools &c. ...	200	116
vi Sale of Fruits and minor forest produce ..	2000	2461	iii Feed and keep of cattle ...	„	680
vii Do. Confiscated Timber.	100	195	iv Rent of leased Forests	300	„
viii Fines and Forfeitures .	100	139	v Charges connected with the Collection of revenue on Grass. &c.,	500	100
ix Miscellaneous receipts ...	1000	401	vi Plantations	1500	2860
Collection from District Forests	...	16,847	vii Forest work	500	251
Total ..	87,500	107,106	viii Forest Survey	500	1136
Deduct Expenditure	66,830	63,717	ix Experiments to test the value of timber.	200	84
Balance ...	20,670	43,389	x Communications and buildings	1000	800
Add—			District Forest working charges	7500	4792
Outstandings at close of the year. 9313			Total	47,260	43,792
Value of stock at close of the year. 102172		111,485	B. ESTABLISHMENT.		
			i Salaries	14,232.	13,934
Deduct Realizations on account of Outstandings at close of 1871—72 3306		154,874	ii Travelling Allowances ..	1600	2529
			iii Contingencies	530	525
			Refunds	„	3
Value of stock at close of 1871—72. 91,280			Law Charges	„	1307
			District Forest Establishment.	3208	1627
		94,586	Total	19,570	19,925
Net Revenue ...		60,288	Total Expenditure ...	66,830	63,717

77. *Receipts.* Under various heads, a total increase of Rs. 43,133, and a total decrease of Rs. 23,527, being a net increase of Rs. 19,606.

Increases. Head I. "*Sale of sandalwood,*" Rs. 25,781. Larger sales and a rising market, already fully written of. A total increase of Rs. 505 under heads VI, VII, VIII, and an increment of Rs. 16,847 under District Forests, not estimated for in the Forest Budget when framed.

Decreases. Head I. An apparent decrease under "*sales of timber,*" of Rs. 20,762; from which however Rs. 10,768 must be deducted being value of wood given to H. H. the Maharaja, and for which the Department receives no payment. The balance of Rs. 9,994, owing to smaller sales, reasons for which have already been given. Under head II. "*Wood removed by purchasers,*" Rs. 1866, owing to the abolition of the license system and careful enquiry into necessity of licenses asked for. Under miscellaneous Rs. 599.

78. *Disbursements:* A. "*Conservancy and working.*" Total decrease of Rs. 6084, total increase Rs. 2616; savings Rs. 3468.

B. "*Establishments,*" total increase Rs. 2239, total decrease Rs. 1884, excess Rs. 355.

Decreases, A. Rs. 2027, by careful working of sandal, though much larger quantity was collected, and smaller fellings of timber. A total of Rs. 1349 saved under heads II, IV, V, VII, IX, and X: and Rs. 2708 under district forests, the work not being carried on through the whole year.

B. Rs. 303, under salaries and contingencies; and Rs. 1581, under District Forests, the full establishment not being charged for, as it was not entertained.

Increases. A. Under III, Rs. 680 on feed and keep of two elephants caught; Rs. 1300 under VI, "*Plantations,*" and Rs. 636 under "*Forest Survey.*" These excesses were provided for under proper sanction by transfers.

B. Under. "*travelling allowances.*" Rs. 929. This was provided for by a transfer from A. The necessity arose in the following way; Bills for 1870—71, which were not submitted by the Assistant Conservator then in charge were not sent in till late in 1871—72. The charges being just, were met, but at the expense of the allotment of 1871—72; which again threw bills of 1871—72, on to the charges of 1872—73. A suit was filed against the Department for detention of sandalwood removed without a passport. The rule of the Department was that all sandalwood should be covered by a passport during removal by purchasers, and the auction sale rules also made mention of this. The suit was filed before the issue of the new auction sale rules, but *after* the issue of the Mysore Forest Rules, which were issued after the old auction sale rules had been brought into force. The Mysore Forest Rules were held to cancel all former Rules. The Civil Court held, that auction sale rules although not mentioned in the rules must be held to have lost the force of law. Hence the Department was cast in the suit, and had to pay.

The total expenditure sanctioned under the Budget grant was Rs. 66,830; and the sum for law charges was met from savings, the total expenditure under all heads, being Rs. 63,717.

79. The net revenue of the Mysore Range for the year 1872—73, was Rs. 60,288.

80. Hassan Range.

Receipts.	Estimate.	Actuals.	Expenditure.	Estimate.	Actuals.
i Sale of Timber brought to Depots—			A. CONSERVANCY AND WORKING.		
1 Timber	5000	...	i Timber Expenses—		
2 Sandalwood	32,000	31,024	1. Timber.	5000	3
ii Do. removed by purchasers.	3500	735	2. Sandalwood.		4293
vi Sale of Fruits and minor Forest produce ...	...	147	ii Purchase of Tools ...	600	97
vii Do. Confiscated Timber ...	100	40	iv Rent of leased Forest ...	600	...
viii Fines and Forfeitures ...	100	79	v Charges connected with the Collection of revenue on Grass. &c.,	...	21
iX Miscellaneous receipts ...	500	139	vi Plantations	1500	650
Collections from District Forests.	...	3016	vii Forest work	500	...
Total...	41,200	35,180	viii Forest Survey	300	...
Deduct Expenditure	27,442	14,844	ix Experiments to test the value of timber.	200	...
Balance ...	13,758	20,336	x Communications and buildings.	1500	19
Add— Outstandings at close of the year.. 55	...	55	District Forest working charges.	6000	759
Net Revenue ...		20,391	Total ...	16,200	5842
			B ESTABLISHMENT.		
			i Salaries	7188	6596
			ii Travelling Allowances ...	1400	1457
			iii Contingencies	510	551
			District Forest Establishment.	2144	398
			Total ...	11,242	9002
			Total Expenditure ...	27,442	14,844

81. *Receipts.* Decrease Rs. 9183, increase Rs. 3163; total decrease Rs. 6020.

Decreases. Under 1. "*Sale of Timber*" the whole estimate of Rs. 5000. With a newly appointed officer fresh from England, and a new establishment, it was found impracticable to get the work commenced in the ghaut forests. "*Sale of sandalwood*" was less by Rs. 976, the collection falling a little short. Under II, "*wood removed by purchasers*" Rs. 2765, very few licenses having been granted. Under VII, and VIII, small decreases of Rs. 60 and Rs. 21; and under X miscellaneous Rs. 361.

Increases. A small increase of Rs. 147, under "*sale of minor forest products.*"

82. *Disbursements.* A. Decrease Rs. 10,379, increases Rs. 21, savings Rs. 10,358.

B. *Decrease.*—Salaries 592, District Forest establishment Rs 1746, total Rs. 2338 ; increase Rs. 98, savings Rs. 2240.

A.	Savings	...10,358
B.	... ...	.. 2240
	Total Rs.	12,598.

A. The chief savings under A. were in the District Forest allotment, Rs. 5241 ; and in communications Rs. 1481, and Rs. 850, under VI Plantations. B. of the Rs. 2240, saved Rs. 1746, were under the District Forest establishments. The lapses are large, and I trust Mr. Jellicoe is now sufficiently acquainted with his duties, to enable him to show better results during 1873—74

83. Nundidroog Range.

Receipts.	Estimates	Actuals.	Expenditure.	Estimates	Actuals.
i Sale of timber brought to Depots.—			A. CONSERVANCY. AND WORKING.		
1 Timber.	3000	1152	i Timber expenses.—		
2 Sandalwood.	32,000	30,332	Timber.	4300	1853
ii Do removed by purchasers	3000	41	Sandalwood.		4731
v Grazing dues.	1000	...	ii Purchase of tools &c.	200	...
vi Sale of Fruits and minor Forest produce.	1000	769	iv Rent of leased Forests.	1500	579
vii Do confiscated timber.	100	...	v Charges connected with the collection of Revenue on grass &c.,	300	...
viii Fines and forfeiture.	100	...	vi Plantations.	10,000	11,695
ix Miscellaneous receipts.	1000	1377	vii Forest work.	250	...
Collections from District Forests.	...	15,490	viii Forest survey.	200	498
Total.....	41,200	49,161	ix Experiments to test the value of timber.	200	...
Deduct Expenditure...	49,402	47,739	x Communications and Buildings.	1000	368
Balance...		1422	District Forest working Charges.	7000	1331
Add—					
Outstandings at close of the year. 1936			Total...	24,950	21,055
Value of stock Do 5572		7508	B. ESTABLISHMENT.		
Total ..		8930	i Salaries.	16,140	14,559
			ii Travelling allowances.	1900	3661
Deduct realizations on account of Outstandings at close of 1871-72 235			iii Contingencies.	570	826
			Refunds.		6000
			District Forest Establishment.	5842	1638
Value of stock at close of 1871-72 4766		5001	Total...	24,452	26,684
Net Revenue...		3929	Total Expenditure...	49,402	47,739

84. *Receipts.*—Less under sales of timber and sandalwood, and other heads showing a total decrease of Rs. 7906, a total increase of Rs. 16,867, net increase Rs. 7961.

Increases.—Rs. 377, under X. "*Miscellaneous,*" and Rs. 15,490, under District Forests not estimated for.

Decreases. Rs. 3516, under "sales of timber and sandalwood". The collection of sandalwood was not well carried out, and we ought to have shown an increase under this head. Under "*grazing dues,*" Rs. 1000, the subject not having been taken up: a small decrease of Rs. 431, under heads VI, VII, VIII: and under II, wood removed by purchasers Rs. 2959. I cannot explain this. The Assistant Conservator can give no explanation either. The amount for licenses granted in District Forests by Deputy Commissioners is included in the total sum of Rs. 15,490.

85. *Disbursements.* A. "*Conservancy and working.*" Decreases 8172, Increases Rs. 4277: savings Rs. 3895: B. "*Establishments.*" Increases Rs. 8017, Decreases Rs. 5785: excess Rs. 2232: total savings Rs. 1663.

Increases. Under head I, the allotment was exceeded by Rs. 2284, and under head VI, "Plantations," by Rs. 1695 for more work done: under head VIII, "survey," Rs. 298 were spent in excess.

Under B. Rs. 1761 were spent under travelling allowances. Mr. King as Officiating Assistant Conservator, became entitled to the travelling allowances of an Assistant; and Mr. Hunter's allowances for 3 months were met, while the charges in the Range itself were higher than anticipated. The contingencies were also exceeded by Rs. 250: and a refund of Rs. 6000 was made which during the course of the year, it was discovered, had been credited to the revenue of 1871—72, while it was but a deposit. The revenue of the year under report is consequently reduced by the same sum.

Decreases. A. Under head IV, Rs. 921 less paid as compensation than was anticipated for land taken up. Rs. 5669 for the district forest work not performed, and a total sum of Rs. 2582 under heads II, V, VII, IX, and X. B. Under district forest establishments, Rs. 4204; for establishments not filled up; and a small sum Rs. 1581, under salaries.

86. The net revenue of the Range, after allowing for the refund of Rs. 6000, is Rs. 3929.

87. *General.* The estimated surplus for the year was Rs. 1,12,234, as set forth in the Original budget, in which no provision was made for either expenditure or receipts of District Forests. Excluding the District Forests for the present, I find the actual surplus for the year to be Rs. 1,42,236, or just Rs. 30,000 more than estimate.

88. The results of the year as regards finance are now exhibited in the form ordered in letter No. 25—22 of 4th January 1873, from Government of India, Agricultural Department, to all Governments (excluding Bombay and Madras.)

	Rs.
Realizations	3,76,185
Deduct—	
Realized on account of transactions of previous periods	3,657
Balance...	3,72,528
Add—	
Outstandings on account of the year	14,520
Value of the year's transactions...	3,87,048

	Rs.
Disbursements	1,92,118
Deduct—	
Disbursements on account of transactions of former years	...
Balance...	1,92,118
Add—	
Due for transactions during the year under review, not yet disbursed ...	...
Real cost of the transactions	1,92,118
Value of year's transactions	3,87,048
Cost	1,92,118
Net result of year's transactions	1,94,930
Deduct—	
Net difference of value of stock	2,367
Net Revenue	1,92,563

GENERAL REMARKS.

89. *Avenues, Groves and Nurseries.* During the course of the year, a note on the best method of growing trees and establishing avenues, groves and nurseries in Mysore, (based on a memorandum of Mr. Baden Powell's for the Punjaub), was drawn up by me at the request of the Chief Commissioner, and published in the Mysore Gazette. In accordance with instructions from the Government of India, the progress made in avenue and tope planting in Mysore, is to be recorded yearly in the Forest Conservator's reports. Some information was embodied last year, but steps were taken to insure fuller and more accurate reports this year. With this end in view, forms were adopted, which were circulated to all officers concerned, and the information is summarized in the tabulated statements set forth below.

Avenues Return for the year 1872—73. *Province of Mysore.*

District.	No. of miles of road in District.	No. of miles of road planted up to 31st March 1872.	To be planted up.	No. of trees of all kinds alive on 31st March 1872.	Planted up during the year 1872-73.		No. of plants from death or misses from other causes not filled up.	Total No. of trees alive on 31st March 1873.	Cost of pitting and planting.	Cost of watering.	Total cost.	Remarks.
					Cuttings.	Seedlings.						
Mysore ...	545	537	8	1,90,194	49,620	27,184	...	1,94,840	...	..	...	At no expense to Govt.
Hassan ...	606	564	42	1,39,941	3064	14,737	9881	1,47,861	...	...	...	Planted by ryots, the trees when dead to be their property.
Shimoga ...	354	322	32	47,004	1141	5187	2684	50,648	...	700-0-0	700-0-0	
Kaddoor ...	355	309	46	56,097	3668	6891	3792	62,864	63-10-0	...	63-10-0	Planted by ryots for usufruct, except round Chikmuglur.
Chitaldroog...	401	390	11	77,711	3644	1878	3077	81,748	148-6	422-10-4	571-0-4	Planted some by Govt some by ryots: who have however no claim to trees or fruit.
Colar ...	352	341	11	69,348	1621	6427	962	76,474	...	...	...	Planted by ryots for usufruct.
Toomkoor ...	436	436	...	77,125	564	76	2305	77,125	...	...	...	No remarks made.
Bangalor ...	472	467	5	1,02,450	14,213	7958	227	1,24,621	...	...	...	Ryots to remove dry branches & enjoy the fruit in return for planting, Govt. lent watercasks for watering in hot weather at some spots.
Total...	3521	3366	155	7,59,870	77,535	50,338	22,928	8,16,181	212-0-0	1122-10-4	1334-10-4	

Return of groves for 1872—73. *Province of Mysore.*

DISTRICT.	Number of trees in groves on 31st March 1872.	Area of acres planted on 31st March 1872.	Number of trees planted out during 1872-73.	Area in acres on 31st March 1873.	At what distance apart.	Transplants or seed sown.	Cost of pitting or ridging.	Cost of watering.	Total cost.	REMARKS.
Mysore	48386	861	27819	878	From 4 ft. to 60 feet.	Transplants	...	...	...	All done by ryots.
Hassan	117888	1122	4769	1196	From 6 ft. to 30 feet.	Transplants	...	...	...	All done by ryots.
Shimoga... ...	4574	7	20	10	12 feet to 40 feet.	...	...	...	...	All done by ryots.
Kaddoor... ...	11447	277	10039	529	Not given.	Transplants	...	...	...	All done by ryots.
Chitaldroog ...	30156	467	5559	594	12 feet to 30 feet.	Transplants	15-0-0	224-11-10	239-11-10	Most done by ryots
Colar	238442	4590	55372	5473	From 2 feet to 30 feet.	Transplants and cuttings	...	...	...	All done by ryots.
Toomkoor ...	40937	623	30487	1114	From 6 feet to 36 feet.	Transplants	...	...	...	All done by ryots.
Bangalore ...	100204	1560	7346	1720	From 3 feet to 19 feet.	Transplants	...	...	...	All done by ryots.
Total...	5,92,034	9507	1,41,411	11,514	From 3 feet to 60 feet.		15-0-0	234-11-10	239-11-10	In most districts the ryots did the work for the usufruct of trees.

Nursery Return for 1872—73. *Province of Mysore.*

District.	No. of nurseries & total area in acres.	Size of smallest & of largest nursery.	Names of seeds, sown in nurseries.	No. of seedlings ready for distribution.	No. used for Govt. avenues and groves.	Number distributed free.	Total Cost.	Remarks.
	No. A. G. Yds.							
Mysore. ...	3.) 77-3-,,	...	Jacks & mangoes	56	1800	...	...	None.
Hassan. ...	3.) 0-13-69	{15 sq: yards / 18 sq: yards}	Pattanga.	700	500	...	...	None.
Shimoga, ...	2.) 0-30-0	...	Various.	222	130	737	...	None.
Kaddoor. ...	3.) 3-12-0	...	Several varieties	2082	120	...	...	None.
Chitaldroog ...	1.) 0-20-0	...	Mangoes.	580	...	...	...	None.
Colar. ...	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil.
Toomkoor. ...	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil.
Bangalore. ...	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil.
Total. ...	51-28-69	...	...	3640	2550	737	...	

90. These returns show that on the 31st March 1873, there were altogether in the Province, in avenues and groves 15,49,626 trees, being an increase on the previous year of 1,97,722 trees.

Contemplated Operations.

91. The sanctioned work for 1873—74 is

(*a.*) To collect and sell in *Nagar.*—

Teak	15,000	cubic feet.
Jungle	15,000	" "
Teak poles	1000	" "
Timber on Ryots holdings (Surveyed lands)	5000	" "
Sandalwood	212	tons.

In *Mysore.*—

Teak	10,000	cubic feet.
Jungle	30,000	" "
Branches and poles	400	cartloads
Sandalwood	150	(tons or more?)

In *Hassan.*—

Timber	5000	cubic feet.
Sandalwood	120	tons

In *Nandidroog.*—

Bamboos	50,000	
Sandalwood	100	(tons or more?)

(*b.*) In *Nagar.*—

To extend sandal reserves, and to carry on the plantations of exotics.

(b.) In *Mysore.*—

The extension of the Kakenkoté (teak) and Gurupura (sandal) plantations.

In *Hassan.*—

The extension of the Vijiyapura (timber) and Baktharavalli (teak) plantations: also to extend sandal reserves.

In *Nandidroog.*—

The extension as far as funds will permit of the Kumbarhalli (timber) and all fuel plantations.

(*c.*) In *Nagar.*—

The extension of the Hebbe, and completion of the Hannigerri roads. Demarcation.

In *Hassan.*—

Completion of Bailoor, and Setthalli roads, Building of huts.

In *Nandidroog.*—

Roads in Devaroydroog forests. Demarcation and huts.

In *Mysore.*—

Demarcations, and improvement of forest tracks.

92. Everywhere the District Forests Scheme will be pushed on as far as practicable, and safe.

93. In accordance with orders, I now proceed to report on the manner in which each officer has worked.

94. Captain Jarrett, the Deputy Conservator has worked well and steadily throughout the year. He was promoted from 3rd to 2nd grade Deputy Conservator on the 1st January 1873.

95. Mr. Macpherson, 2nd grade Assistant Conservator has worked very well indeed. His plantation work has been most successful. Both he and Captain Jarrett, in my opinion, deserve credit for the way in which they have overcome several obstacles to the introduction of the District Forest scheme. Mr. Macpherson was compelled by illness to leave his range in February, and did not return till after close of the year. He has passed the Canarese Examination since, and his name will be submitted for promotion.

96. Mr. Ludlow, joined from England, just before the close of the year under report.

97. Mr. Hicks. I regret that I cannot speak as favourably of this officer as I could wish to. Though not wanting in physical energy, his work has not been as good as it ought to be. His subordinates are not worked regularly and systematically. But his chief failing has been in the manner in which his office duties have been conducted, and the late submission of his accounts, the frequent mistakes in which, and their want of accuracy, have thrown much avoidable and vexatious labour on my office, which is otherwise fully occupied. I was compelled to report these failings in Mr. Hicks, during the course of last year, and he has of late improved. Mr. Ludlow will shortly take charge of this range, Mr. Hicks being placed under him in charge of the district forests.

98. Mr. Jellicoe has been careful and regular in his office duties, and energetic out of doors. He, new to the country and language and with a newly raised establishment, had many difficulties to overcome, and will I think prove a good and useful officer.

99. Mr. Hutchins and Mr. Dickinson only joined in December last. Mr. Hutchins is at present in the Conservator's Office, and Mr. Dickinson under the Deputy Conservator in Nagar, and as far as they can yet, have proved themselves able and active.

100. Mr. King, officiating Assistant Conservator has worked very hard and very well in the Plantations. He took over charge from Mr. Hunter in July 1872, and the whole of the work done in these plantations during 1872—73, may fairly be claimed by him as his. He has not been idle, nor has he allowed his subordinates to waste their time, and the plantations, under his charge, have vastly improved. Before he entered the Department in 1870, he had qualified himself in Surveying and in Hindustani, and his name will be submitted for promotion to the grade of Assistant which I think he has fairly earned.

101. During the year, one ranger in Shimoga proved himself unworthy of confidence He is now committed for trial for breach of trust. Another ranger, Chengalroy Naidu in Bangalore was degraded to the position of Mutsuddy for carelessness, and disregard of orders after frequent warnings. A wood yard Mootsuddy convicted of trading in wood was fined Rs. 500 under the Forest Rules and dismissed. The head writer in Mr. Hick's Office was dismissed for gross and constant acts of carelessness.

102. With the above exceptions, all subordinates are generally well reported on by their superiors.

103. My office establishment was increased by one accountant, whose time is fully occupied. The office duties are still increasing, and had this man not been allowed me, I should not have been able to keep the accounts in order at all. The correspondence returns are given as usual.

	Receipts.	Issues.
English	3,240	3,130
Kanarese	938	725
Total...	4,178	3,855

I have the honor to be
SIR,
Your most obodient Servant,

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore & Coorg.

GOVERNMENT SERIES, NO. 21.

MYSORE FOREST DEPARTMENT.

Annual Summary of Revenue and Expnditure for the year 1872—73.

PARTICULARS.	Direction.			Nundidroog Range.			Nagar. Range.			Mysore Range.			Hassan Range			Total.			REMARKS.
RECEIPTS.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs	A.	P.	Rs.	A.	P.	R.	A	P.	
i Sale of timber brought to Dopots } Timber	..	..	..	1152	9	..	33,765	..	10	29,237	9	..	..	..	..	64,155	2	10	
Sandalwood	..	..	..	30,331	15	..	1,18,348	15	..	57,781	5	10	31,023	12	3	2,37,486	..	1	
ii Do removed by purchasers, &c.	..	..	..	40	11	10	7522	12	2	134	8	..	734	15	8	8432	15	9	
iii Duty on foreign timber	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
iv Permit Fees, &c.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
v Grazing dues	..	..	..	..	..	..	5	8	11	..	..	..	..	..	..	5	8	11	
vi Sale of fruits babul pods and other minor forest produce	..	..	..	768	13	6	413	5	..	2461	..	..	146	9	..	3789	11	6	
vii Do confiscated &c. timber	..	..	..	..	..	..	825	11	11	104	15	6	40	1	6	970	12	11	
viii Fines and forfeitures	..	..	..	..	..	..	83	14	4	138	8	..	79	8	6	301	14	10	
IX Miscellaneous receipts	..	..	..	1377	7	9	198	8	7	401	1	11	139	3	9	2116	6	..	
Collections from District forests	..	..	..	15,490	1	..	23,673	1	4	16,847	2	1	3016	8	3	58,926	12	8	
Total Receipts	..	..	..	49,161	10	1	1,84,736	14	2	1,07,106	2	4	35,180	10	11	3,76,185	5	6	
EXPENDITURE.																			
A. Conservancy and Working.																			
i Timber expenses ... } Timber	..	..	..	1853	4	5	6854	5	11	14,737	5	4	3	6	..	23,448	5	8	
Sandalwood	..	..	..	4730	13	11	11,124	15	10	18,296	..	11	4292	9	3	38,444	7	11	
ii Purchase of Tools &c.	..	..	..	...	..	..	7	..	..	115	10	6	96	10	..	219	4	6	
iii Feed and keep of cattle	..	..	..	...	..	..	774	7	3	680	5	7	..	..	..	1454	12	10	
iv Rent of leased Forests &c.	..	..	..	579	..	..	..	..	..	..	..	..	..	..	..	579	..	..	
v Charges in collecting revenue of grass &c.	..	..	..	...	..	..	..	..	..	100	..	..	21	..	..	121	..	..	
vi Plantations	..	..	..	11,604	9	6	1070	14	4	2799	10	9	649	13	5	16,215	..	..	
vii Forest work	..	..	..	..	..	..	..	..	..	251	..	..	..	..	..	251	5	..	
viii Forest survey	..	..	..	497	15	10	50	..	..	1135	8	6	..	..	..	1683	8	4	
ix Experiments to test the value on timber &c.	..	..	..	...	..	..	60	..	..	84	6	..	..	..	..	144	6	..	
x Communications and Buildings	..	..	..	368	4	..	2741	6	1	800	..	..	19	8	8	3929	2	9	
District forest working Charges	..	..	..	1231	2	7	2587	..	5	4791	10	5	759	2	3	9468	15	8	
Total A. Conservancy and Working	..	..	..	21,055	2	3	25,270	1	10	43,791	15	..	5842	1	7	95,959	4	8	
B. Establishment.																			
i Salaries	11,948	6	2	14,559	1	10	18,819	14	..	13,891	14	10	6596	2	4	65,815	7	2	
Deputation and special allowances	113	..	..	...	..	..	..	..	..	42	8	..	..	..	..	155	8	..	
ii Travelling allowances	1734	13	8	3660	10	3	2118	10	4	2528	11	4	1456	12	6	11,499	10	1	
iii Contingencies	1210	2	5	826	8	3	603	4	8	525	8	10	550	15	4	3716	7	6	
Refunds on account of excess credits	..	..	..	0000	..	..	35	..	6	2	12	..	..	..	..	6037	12	6	
Law Charges	..	..	..	...	..	..	..	..	..	1307	1	7	..	..	..	1307	1	7	
District Forest Establishment	..	..	..	1637	8	..	3904	1	7	1626	14	7	398	10	1	7627	2	3	
Total B Establishment	15,006	6	3	26,683	12	4	25,540	15	1	19,925	7	2	9002	8	3	96,159	1	1	
Total Expenditure	15,006	6	3	47,738	14	7	50,811	..	11	63,717	6	2	14,844	9	10	1,92,118	5	9	

GOVERNMENT SERIES, NO. 22.

Cr. MYSORE FOREST DEPARTMENT. *Dr.*

Annual abstract Account of the Cash Transactions of the Forest Department in Mysore, for the year 1872—73.

Year.	Heads of account.	Amount.			Year.	Heads of account.	Amount.		
1872—73.	To cash balance in hand on 31st March 1872.	6,464	4	1	1872—73.	By Expenditure of the Department	1,86,080	9	3
	„ Revenue received	3,76,185	5	6		„ Remittances to State Treasuries.	3,76,185	5	6
	„ Remittances from State Treasuries	1,97,603	11	11		„ Repayment of advances ...	1420	8	5
	„ Deposits.	„	„	„		„ Refunds of revenue	6037	12	...
	„ Advances recovered	„	„	„		„ Balance outstanding on 31st March 1873.	10,529	2	4
	Total Rupees ...	5,80,253	5	6		Total Rupees ...	5,80,253	5	6

CONSERVATOR OF FORESTS' OFFICE,
MYSORE AND COORG,
Bangalore, 10*th July* 1873.

G. J. VAN SOMEREN, *Captain,*
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GOVERNMENT SERIES NO. 23.

MYSORE FOREST DEPARTMENT.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and Disbursers for the year 1872—73.

Divisions.	Departmental Debtor.									Departmental Creditor.									Balance due.								
	At the commencement of the year.			Recoveries in cash & in work done during the year.			At the close of the year.			At the commencement of the year.			Payments made during the year.			At close of the year.			To department outstandings.			By department liabilities.			Remarks.
Nundidroog.	...	...	...	21,243	7	11	21,243	7	11	1115	9	3	22,876	1	8	23,991	10	11	2748	3	..	...	...	...	
Nagar. ...	...	...	...	25,358	4	10	25,358	4	10	3141	5	9	26,401	2	6	29,542	8	3	4184	3	5	...	...	...	
Mysore. ...	...	...	...	44 644	8	8	44,644	8	8	1749	7	10	45.368	7	3	47,117	15	1	2473	6	5	...	...	...	
Hassan. ...	...	...	...	6221	10	2	6221	10	2	457	13	3	6887	2	5	7344	15	8	1123	5	6	...	..	..	
Total.....	...	...	...	97,467	15	7	97,467	15	7	6464	4	1	1,01,532	13	10	1,07,997	1	11	10,529	2	4	...	..	...	

CONSERVATOR OF FORESTS OFFICE,

MYSORE AND COORG,

Bangalore, 10*th July* 1873.

G. J. VAN SOMEREN, *Captain*,

Conservator of Forests, Mysore & Coorg.

GOVERNMENT SERIES NO. 28.

MYSORE FOREST DEPARTMENT.

Annual Account of Forest Revenue for 1872—73.

Receipts.	Amount.			Disbursements.	Amount.		
Amount of revenue realized in 1872—73.	3,76,185	5	6	Amount disbursed in 1872—73.	1,92,118	5	9
Deduct amount realized on account of previous periods.	3656	13	11	Deduct amount disbursed on account of transactions of former periods. ..	...	...	...
Balance ...	3,72,528	7	7	Balance. ...	1,92,118	5	9
Outstandings on account of the year. ...	14,519	12	11	Add amount due for transactions during the year under review but not yet disbursed.	...	...	...
Value of the year's transactions.	3,87,048	4	6	Real cost of the year's transactions ...	1,92,118	5	9

Value of the year's transactions.	3,87,048	4	6
Cost of the year's transactions.	1,92,118	5	9
Balance. ...	1,94,929	14	9
Deduct difference between the value of stock at the commencement and close of the year.	2367	...	...
Net Results of the year. ...	1,92,562	14	9

CONSERVATOR OF FORESTS' OFFICE,

MYSORE & COORG,

Bangalore 10*th July* 1873.

G. J. VAN SOMEREN, *Captain*,

Conservator of Forests, Mysore & Coorg.

Stock Account of Quantities and Value of Timber and other Forest produce on hand at the commencement and close of the year 1872—73:

DESCRIPTION.	In Depôt on 1st April 1872.		Add received during 1872—73.		Deduct issued or sold during 1872—73.					Remaining in stock on 31st March 1873.		REMARKS.
	Quantity	Probable Value.	Quantity	Probable Value.	Quantity.	Probable Value.	Amount realized.	Difference. Profit.	Difference. Loss.	Quantity	Probable Value.	
				Timber.								
Nagar Range. Teak ..	1373	17,849 ,, ,,	1152	14,976 ,, ,,	1707	22,191 ,, ,,	13,772 2 7	,, ,, ,,	8418 13 5	818	10,634 ,, ,,	
Nagar Range. Black wood	11	110 ,, ,,	127	1270 ,, ,,	110	1100 ,, ,,	256 4 2	,, ,, ,,	843 11 10	28	280 ,, ,,	
Nagar Range. Jungle wood	2011	20,110 ,, ,,	3694	36,940 ,, ,,	2140	21,400 ,, ,,	21,498 15 5	98 15 5	,, ,, ,,	3565	35,650 ,, ,,	
Nagar Range. Teak and jungle wood poles &c.,	81	81 ,, ,,	3155	3155 ,, ,,	1523	1523 ,, ,,	1402 14 ,,	,, ,, ,,	120 2 ,,	1713	1713 ,, ,,	
Total .	3476	38,150 ,, ,,	8128	56,341 ,, ,,	5480	46,214 ,, ,,	36,930 4 2	98 15 5	9382 11 3	6124	48,277 ,, ,,	
Mysore Range ... Teak ...	3576	46,488 ,, ,,	73	949 ,, ,,	2302	29,926 ,, ,,	9700 10 11	,, ,, ,,	20,225 5 1	1347	17,511 ,, ,,	
Mysore Range ... Black wood ..	36	360 ,, ,,	18	180 ,, ,,	21	210 ,, ,,	445 7 ,,	235 7 ,,	,, ,, ,,	33	330 ,, ,,	
Mysore Range ... Jungle wood	3522	35,220 ,, ,,	507	5070 ,, ,,	3074	30,740 ,, ,,	18,140 1 7	,, ,, ,,	12,599 14 5	955	9550 ,, ,,	
Mysore Range ... Teak poles ..	,,	,, ,, ,,	715	715 ,, ,,	544	544 ,, ,,	504 4 ,,	,, ,, ,,	39 12 ,,	171	171 ,, ,,	
Mysore Range ... Bamboos ...	4600	92 ,, ,,	941	18 ,, ,,	4603	92 ,, ,,	40 ,, ,,	,, ,, ,,	52 ,, ,,	938	18 ,, ,,	
Total.....	11,734	82,160 ,, ,,	2254	6932 ,, ,,	* 10,544	61,512 ,, ,,	†28,830 7 6	235 7 ,,	32,916 15 6	3444	27,580 ,, ,,	
Nundidroog Range Jungle wood	36	360 ,, ,,	,,	,, ,, ,,	,,	,, ,, ,,	,, ,, ,,	,, ,, ,,	,, ,, ,,	36	360 ,, ,,	
Nundidroog Range Bamboos ...	3100	62 ,, ,,	42,567	850 ,, ,,	42,640	852 ,, ,,	2730 14 3	1878 14 3	,, ,, ,,	3027	60 ,, ,,	
Total	3136	422 ,, ,,	42,567	850 ,, ,,	42,640	852 ,, ,,	2730 14 3	1878 14 3	,, ,, ,,	3063	420 ,, ,,	
Total Timber.....	18,346	1,20,732 ,, ,,	52,949	64,123 ,, ,,	58,664	1,08,578 ,, ,,	68,491 9 11	2213 4 8	42,299 10 9	12,631	76,277 ,, ,,	
	Tons.			**Sandalwood.**								
Naggur Range ... Good Wood .	117	37,440 ,, ,,	243	77,760 ,, ,,	317	1,01,440 ,, ,,	1,16,562 13 2	15,122 13 2	,, ,, ,,	43	13,760 ,, ,,	
Naggur Range ... Inferior Wood ...	41	1312 ,, ,,	102	3264 ,, ,,	118	3776 ,, ,,	1785 13 1	,, ,, ,,	1990 2 11	25	800 ,, ,,	
Mysore Range ... Good Wood .	28	8960 ,, ,,	350	1,12,000 ,, ,,	146	46,720 ,, ,,	57,470 13 2	10,750 13 2	,, ,, ,,	232	74,240 ,, ,,	
Mysore Range ... Inferior Wood ..	5	160 ,, ,,	29	928 ,, ,,	23	736 ,, ,,	420 7 ,,	,, ,, ,,	315 9 ,,	11	352 ,, ,,	
Hassan Range ... Good Wood .	,,	,, ,, ,,	70	22,400 ,, ,,	70	22,400 ,, ,,	30,777 13 2	8377 13 2	,, ,, ,,	,,	,, ,, ,,	
Hassan Range ... Inferior Wood ..	,,	,, ,, ,,	13	416 ,, ,,	13	416 ,, ,,	250 ,, ,,	,, ,, ,,	166 ,, ,,	,,	,, ,, ,,	
Nundidroog Range . Good Wood .	12¾	4080 ,, ,,	94¼	30,160 ,, ,,	92	29,440 ,, ,,	30,165 2 8	725 2 8	,, ,, ,,	15	4800 ,, ,,	
Nundidroog Range . Inferior Wood ..	8¼	264 ,, ,,	31	992 ,, ,,	28¼	904 ,, ,,	94 ,, ,,	,, ,, ,,	810 ,, ,,	11	352 ,, ,,	
Total Sandalwood....	212	52,216 ,, ,,	932¼	2,47,920 ,, ,,	807¼	2,05,832 ,, ,,	2,37,526 14 3	34,976 10 2	3281 11 11	337	94,304 ,, ,,	
Grand Total....	18,558	1,72,948 ,, ,,	5,38,81¼	3,12,043 ,, ,,	59,471¼	3,14,410 ,, ,,	3,06,018 8 2	37,189 14 10	45,581 6 8	12,968	1,70,581 ,, ,,	

* Includes 2761 small pieces of wood felled prior to the formation of the Department, left lying all over the Forests and at last written off the accounts under the Chief Commissioner's sanction vide Secretary's No. 220 F. of the 30th April 1873.

† Besides the above 10,768—1—8 rupees' worth of timber included under head "quantity" was supplied free of charge to His Highness the Maharaja.

CONSERVATOR OF FORESTS' OFFICE,
MYSORE AND COORG,
Bangalore, 10*th July* 1873.

G. J. VAN SOMEREN, *Captain*,
Conservator of Forests, Mysore & Coorg.

Statement showing Expenditure incurred on account of Plantations in Mysore up to the close of official year. 1872-73.

Division.	Name of plantation.	Previous area planted.	Area planted in 1871-72.	Area planted in 1872-73.	Total area planted	Previous cost of formation and maintenance.	Cost of formation and maintenance on area planted in 1871-1872.	Cost of formation on area planted in 1872-73.	Total cost of formation and maintenance on whole area planted.	Amount realized on crops in previous years.	Amount realized on crops in 1871-72.	Amount realized on crops in 1872-73.	Total amount realized on crops.	Total net cost of area planted formation and maintenance.	Average cost per acre for formation and maintenance. In previous years.	Average cost per acre for formation and maintenance. A. In 1872-73.	Average cost per acre for formation in 1872-73.	Average cost per acre for formation and maintenance on whole area planted.
Nuggur.	Lakkavalli (teak.)	...	15	"	15	...	805	58	863	...	...	...	...	863	53	4	57	57
...	Sakrabeil.	...	30	"	30	...	2409	134	2543	...	...	...	...	2543	80	4	84	84
...	Hebbe.	...	3	6¼	9¼	...	230	475	705	...	...	...	...	705	...	...	76	76
...	Alkol (Sandal.)	...	71	"	71	...	702	33	735	...	...	...	...	735	...	...	10 4	10 4
...	Anapanakutte.	...	237	"	237	...	543	16	559	...	...	...	...	559	...	...	2	2
...	Santawarri (Euc.)	...	4¼	"	4¼	...	726	170	896	...	...	...	...	896	...	...	396	396
Mysore.	Kakenkotte (teak.)	...	"	53	53	...	*462	1827	2289	...	...	76 7 4	76 7 4	2289	...	...	37 5 1	37 5 1
...	Gurapur (Sandal.)	...	"	30	30	...	406	770	1176	...	...	...	...	1176	...	...	39	39
...	Karapura.	...	"	5	5	...	"	202	202	...	...	...	...	202	...	...	40	40
Nundi droog	Kumbarhalli.(timber)	...	40	66	106	...	1117	1639	2756	...	...	...	...	2756	...	...	...	26
...	Maddagiri.	...	"	25	25	...	"	334	334	...	...	...	...	334	...	...	...	13
...	Chotta and Bara Hossa Harridi (Fuel)	...	15	46	61	...	2360	1471	3831	...	...	...	...	3831	...	...	...	62
...	Jadiganahalli.	...	20	15	35	...	992	592	1584	...	...	...	...	1584	...	...	...	45
...	Nellal.	...	"	32	32	...	204	717	921	...	...	...	...	921	...	...	...	29
...	Kadagodi.	...	"	10	10	...	"	521	521	...	...	...	...	521	...	...	...	50
...	Kumalgod.	...	"	25	25	...	2247	1269	3516	...	...	...	...	3516	...	...	...	140
...	Kurandhalli.	...	118	3	121	...	754	373	1127	...	...	...	...	1127	...	...	...	9
...	Karapanhalli.	...	9	4	13	...	537	442	979	...	...	...	...	979	...	...	...	75
...	Marsandra.	...	15	44	59	...	1114	587	1701	...	...	...	...	1701	...	...	...	29
...	Appasandra.	...	46	21	67	...	1501	630	2131	...	...	...	...	2131	...	...	...	32
...	Nundidroog (aveunes)	...	"	"	"	...	"	301	301	...	...	...	...	301	...	...	...	...
...	Supervising Establishment in Nundidroog Range.	...	"	"	"	...	"	334	334	...	...	...	...	334	...	...	...	...
	Collection of seeds Purchase of Tools and sundries for general use.	...	"	"	"	...	"	2670	2670	...	...	...	...	2670	...	...	...	...
	Total..	...	623¼	385¼	1008½	...	17,109	15,565	32,674	...	...	76 7 4	76 7 4	32,674	...	...	...	...

CONSERVATOR OF FORESTS' OFFICE,
MYSORE AND COORG,
Bangalore, 10th July 1873.

* Rs. 196 expended in sowing seeds in Forests in 1870-71. included in the sum of Rs. 462.

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore and Coorg.

APPENDIX.

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SKETCH OF THE HISTORY OF THE DEPARTMENT SINCE ITS FORMATION IN 1864 AND OF ITS OPERATIONS.

Personel of the Department. Officers.

1. The first Conservator of Forests in Mysore, Major A. Hunter, 30th, M. N. I., entered on his duties in January 1864, when also Lieutenant Miller, (who had since October 1863 held the post of Forest Assistant to the Superintendent of Nagar), was appointed Assistant Conservator in Nagar. On the 4th May 1864, I was placed in charge of Ashtagram and Coorg, as first Assistant, but was in February 1865, relieved of the charge of Coorg, which was made over to Mr. C. A. Dobbs, as Third Assistant Conservator. In April 1865 Mr. Madava Rau was appointed Sub Assistant Conservator in Nandidroog. No change took place in the numbers and distribution of officers till the 20th September 1866, when Major Hunter left for England on sick leave, and I was appointed to officiate as Conservator. Mr. Dobbs took my place in Ashtagram, and Mr. Edgar Ludlow was appointed Assistant Conservator in Coorg. Lieutenant Miller having resigned his post, Mr. F. H. Clerk assumed charge of Nagar in January 1867, the Superintendent of the Division having carried on the duties in the interim. Mr. Madava Rau resigned his appointment in October 1866, and Mr. J. H. Hunter took his place.

2. On the 6th December 1867 Major Hunter returned to duty, but resigned his post exactly one month afterwards, and I was again appointed to officiate as Conservator,

3. In October 1868 Mr. F. H. Clerk was transferred as Sub Assistant to Nandidroog, but died en-route of jungle fever. His place was taken by Mr. E. O. R. Clarke. In November 1868, Mr. Dobbs took charge of Nagar, Mr. Ludlow of Ashtagram, and Mr. Hunter, on promotion, went to Coorg.

4. In January 1869, I was confirmed in the Post of Conservator of the fourth class.

5. On the 3rd January 1873, the services of Mr. E. O. R. Clarke were dispensed with, and the executive duties of the range, in addition to my own, were carried on by me till the 1st April 1870, when Mr. W. King was appointed Sub Assistant Conservator, but relieved on the 1st July by Mr. H. R. Ring. Mr. King was reappointed to the Department on the 26th July, and put in charge of the Nandidroog plantations. In March 1871 Mr. Ludlow fell ill, and having made over charge to an Assistant Commissioner, left for England in April. He was afterwards transferred to British Burmah. The Assistant Commissioner was relieved by Mr. King on the 22nd April and Mr. Iver Macpherson (transferred from Burmah,) took over charge from Mr. King on the 22nd July 1871.

6. In Nagar, the Department lost a good officer in April 1871, when Mr. Dobbs, Deputy Conservator, died. The range was made over to an officer of the Public Works Department, till Captain H. C. T. Jarrett v. c., (transferred from the Central Provinces), joined on the 17th July 1871 from on furlough in England.

7. In Nandidroog, Mr. F. C. Hicks, from the Central Provinces, assumed charge on the 13th July 1871, and Mr. Ring was in August transferred to Coorg, vice Mr. Hunter reduced to Sub Assistant Conservator, and brought back to Mysore.

8. Mr. J. T. Jellicoe, the first of the trained assistants sent to Mysore, joined from England on the 22nd November 1871, and was placed on 1st April 1872, in charge of the new Hassan Range which was formed by dividing the Ashtagram Range into two charges, Mysore and Hassan.

9. Mr. Hunter's services were dispensed with by the Government of India, on the 19th July 1872, and Mr. D. E. Hutchins and Mr. F. B. Dickinson joined from England on the 22nd December 1872.

10. During the nine years 1864—65 to 1872—73, the casualties in the Department have been; two officers, dead; three, resigned; one, transferred; and the services of two dispensed with.

11. The Ashtagram Range has during the same time, been at different times under the charge of six officers: Nagar under six; and Nandidroog under five. These frequent changes are to be deplored.

Establishments Controlling.

12. The establishment of Officers has gradually increased from

1. Conservator,
2. Assistant Conservators,
1. Sub Assistant Conservator;

to,

1. Conservator
1. Deputy Conservator
5. Assistant Conservators *
1. Sub Assistant Conservator (Offg. A. C.)

Office.

13. In 1864 the office establishments were fixed at 3 English and 4 Canarese clerks, 10 peons and 3 lascars at an annual cost of Rs. 2604. There are now, including the new District Forest Offices, 12 English and 12 Canarese Clerks: 1 Accountant; 17 peons and 8 lascars at an annual cost of Rs. 12,144.

Conservancy and work.

14. In 1864 the Conservancy and work Establishments were fixed at 8 overseers, 5 Darogahs, 20 Duffadars, 158 peons, 8 Mutsaddies and 27 Gollars; costing altogether Rs. 17,880 per annum. There are now, (including the District Forest Establishments all of which have not yet been entertained,) 10 Rangers, 6 Darogahs, 9 Head Watchers,

* Exclusive of Mr. Ludlow, re-transferred to Mysore since his return from on furlough.

320 Forest Watchers, and 107 Mutsaddies, twenty four of whom are practically Assistant Rangers. This Establishment cost altogether Rs. 50,592 a year.

15. Before the formation of the Department, the forests of the three Divisions were worked by the Commissioners on various systems. No common legislation had ever been attempted, and the only rule that obtained pretty generally was one, that a ryot requiring any wood but teak or sandal, was allowed to fell it on payment of a seigniorage of Rs. one per cart-load. But to this rule there were local exceptions.

Legislation. No systematic legislation prior to formation of Department.

In Ashtagram, though a woodyard had been established before the Forest Department was formed, traders were allowed to remove teak from the forests on a stump fee of *annas eight* (8) *per tree*. One of the first duties I had to perform as Assistant was the examination of claims set up by holders of such ruinous permits, and they were all settled and withdrawn.

16. The first thing that the newly appointed Officers had to do, was to make themselves acquainted with the forests they were to work. Major Hunter examined the varying systems obtaining in the three divisions, and in 1865 the first Mysore Forest Rules were issued under Act VII of 1865. They contained two lists of trees which were declared to be "*Reserved*" under certain conditions. The first included 15 kinds of trees which were declared to be absolutely the property of Government. No one either ryot or trader was allowed to fell such, wherever growing, except on license and payment of certain fixed rates. The second list exhibited the names of 27 other kinds of trees, reserved from the trader, but given free to the ryot for his own use, on the condition that such trees grew within the limits of his own talukh. All kinds of trees not named in these two lists were free to ryots, and might be felled by the trader on payment of Rs. one per bandy-load. Under Section 8, felling of any kind, in certain places might be prohibited by the Commissioners of Divisions: and under other sections the necessity of obtaining passports for the removal of timber and bamboos was enforced; and ryots found trading in wood given them free, or at reduced rates were liable to punishment. Several forest offences, such as the destruction of saplings, felling and burning jungle for cultivation, and collecting minor forest products without permission, were also prohibited under penalties.

Forest Rules introduced.

Felling of trees might be prohibited.

17. The utmost punishment provided under Act VII, was a fine of Rs. 50, and the confiscation of the knife or axe of the offender. This mild penalty gave rise to the idea that the Government attached but little importance to the commission of forest offences.

Penalties too mild.

18. In 1866, the Department had the advantage of being visited and its work inspected by Dr. Brandis, Inspector General of forests. One result of his visit was, that a new set of Forest Rules was drawn up, and after sanction by the Government of India, came into force on the 1st April 1869.

New Forest Rules introduced.

19. These rules provided for the formation of State, Village and District Forests. They greatly enhanced the powers of Forest Officers, within the limits of the State Forests, and permitted them to summarily arrest an offender, and to take him

before the nearest Magistrate. The State Forests were placed under the sole management of the Department, while the District Forests were left entirely to the working and Conservancy of the Revenue authorities, with one exception, that all reserved trees, (the number of which was now reduced to 9), growing anywhere on Government land, could be sold only by the Forest Department. Executive forest officers were required to report to the Revenue authorities the state of these District Forests, and to bring to their notice any irregularities that occurred in them. The Conservator was also empowered to undertake any operations, which he might think requisite, in such forests. The small establishment at his disposal, and the other varied duties of the Department effectually prevented any supervision, and the District Forests were perforce left entirely to the Revenue authorities who worked them on the license system.

Scale of punishments raised.

20. The most noticeable features of the rules was, that the punishments, for forest offences, were made far more severe. Offenders now became liable to a fine of Rs. 500, or imprisonment for six months. All vehicles, animals, and implements used in the commission of an offence, were made liable to seizure and confiscation.

Wood how obtained.

21. Ryots were allowed unreserved wood and bamboos, free of duty, for agricultural purposes, but had to pay a duty of Rs. one per cart-load for wood for housebuilding purposes. The manner in which licenses were to be issued and returned, was laid down, and traders were still required to pay for trees of all kinds. The Chief Commissioner was empowered to set off Village Forests, and also to exempt any talukh from the operations of the Forest Rules.

Rules already becoming absolete.

22. These rules were in many respects better than those they superseded, but they are now falling behind the requirements of the Province. As the District authorities had no establishments to enable them to protect the forests under their nominal charge, they were to all intents and purposes neglected. The rule by which Shaikdars were allowed to grant licenses, was found to have worked great waste. During 1871—72, this power was withdrawn, from both Amildars and Shaikdars as a preparatory step to the introduction of the District Forests scheme; the main feature of which is the gradual abolition of the license system, and the supply of wood from depôts to all comers. This scheme has been sanctioned as an experiment, and its working entrusted to the Forest Officers.

23. Many sections of the rules are virtually suspended, and it will be necessary shortly to submit a draft of revised rules.

Notifications issued on various points.

24. From time to time notifications have been issued on various points. The most important of these was No. 136 of the 13th July 1870, which conferred on ryots, paying land cundayem, the absolute right over all trees growing on their holdings, provided that the trees were planted by their ancestors or by themselves or by former holders of the land, from whom the right of occupation had been bought by the present incumbent. Till the issue of this rule, every ryot paid a seigniorage of Rs. one per cart-load for all wood felled by him on his own land, though he might himself have planted and nurtured the trees. He has now simply to show his right to the tree, and obtain a free passport for its removal should he wish to sell it, or carry it elsewhere.

The rights of Inamdars to the trees on their Inam lands, and their claims to the sandal growing thereon were clearly defined in Notification No. 54 of the 22nd June 1869.

Rules for the collection of sandalwood growing on Inam lands were laid down in Notification No. 28 of the 29th July 1872.

Timber and sandalwood auction sale rules were introduced and revised as necessity arose.

Six Malnaad talukhs were exempted from the ordinary operation of the Forest Rules in Notification No 38 of the 27th September 1872.

The power to try forest offences, limited at first to District Officers, was extended to Amildars of talukhs.

Rules under which cardamom forests might be leased were published in Notification No. 269 of the 6th January 1873.

25. In 1869 the Chennagiri talukh was settled by the Revenue Settlement Department. This being the first talukh in the settlement of which the Forest Department was interested, a question arose regarding the disposal of reserved trees on lands taken up by ryots. It was decided that the Forest Department should be allowed one year in which to fell all reserved trees, on holdings made over on assessment to private individuals. After the lapse of a year, all such trees, left unremoved by the Department, fall, with the exception of sandalwood, to the landholder. This rule was entered in the Revenue Settlement Guarantee.

General tendency of Forest Legislation in Mysore.

26. The whole tendency of forest legislation in Mysore, during the past nine years, has been to confer wider privileges on the holders of land, and on Inamdars; while, on the other hand the rights of Government in all forests, and over all trees, not belonging under certain fixed rules to private individuals, have been clearly defined, and are far more strictly enforced.

27. Another result of the revision of rules from time to time, has been, to throw the management of all forests more into the hands of the forest officers, and to relieve the Revenue authorities of a duty which they had neither time nor establishments sufficient to carry out. This change has necessarily entailed a large increase in establishments, but this is unavoidable if the forests are to be cared for or protected.

Accounts Rules first issued in September 1864.

28. The first Forest Account Rules were issued on the 15th September 1864; with effect from the 1st October following. By these, monthly estimates were called for from the subordinates, based on which the Assistant Conservators submitted monthly applications for letters of credit, which were sent through the Conservator to the Deputy Accountant General, who sent a letter of credit to the Assistant Conservator, who sent it to the Treasury Officer, and drew on it by cheques as necessity occurred. The Assistant Conservator submitted direct to the Deputy Accountant General, a monthly cash account; and to the various Deputy Commissioners three separate forms. (1). A Register of licenses granted by Amildars: (2). A Register of licenses granted by himself: (3). Account sales of timber and Sandal-

wood, &c., The Revenue officers were responsible for the collection of all moneys due to the Department. The Assistant Conservator submitted copies of his cash accounts and of his monthly returns to the Conservator, who submitted quarterly statements to the Commissioners of Divisions. All bills including pay bills, were disbursed after audit.

29. These rules were framed on the principle that there was to be the most intimate connection between the Forest and Revenue officers. One result was, that the Conservator had to submit three quarterly statements to three Commissioners, to all of whom he was partially subordinate. Several changes were from time to time introduced, and made known by notifications, till in July 1869, some time after the visit of Dr. Brandis, revised account rules were issued.

Revised rules of 1869.

30. These revised rules still form the basis on which we are working. But they too have undergone various and important alterations; and it will be shortly necessary to submit a draft of rules to bring the orders into accordance with the practice actually obtaining.

31. Under the rules of 1869, the applications for letters of credit are still sent through the Conservator to the Deputy Accountant General, who however sends the letters of credit direct to the Treasury officers, and the fact of the money being at their disposal is intimated to the Assistant Conservators, by the Conservator. A monthly cash account is submitted by the Assistants to the Deputy Accountant General, together with a balance of outstandings in the hands of subordinates, all adjustments in which must be supported by the working charges Bills. Copies of the cash accounts, and Balance statements are sent to the Conservator, whose duty it now is to check and countersign all bills, with the exception of those for monthly salaries of fixed establishments, which are cashed before audit on the responsibility of the signing officer. Returns, to be submitted to the Conservator, showing details of work done in the forests were introduced, and the register of licenses and the account sales were also sent to the Conservator, copies to the Deputy Commissioners. A new form of statement of Demands collections and out-standings; filled up in part by the Assistant Conservators, and in part by the Deputy Commissioners was also sent in to the Conservator. The Deputy Commissioners were still held responsible for the collection of all dues, the realization of which they intimate to the Assistant Conservators.

32. The submission of quarterly statements by the Conservator to the Commissioners of Divisions was discontinued, and the Department began to assume more shape, and a more independent position. The work in all forest offices, and more especially in that of the Conservator increased, but this was unavoidable.

Receipts of district forests credited to Land Revenue.

33. In 1869, the receipts of the department were reduced, by the transfer to the Land Revenue, of the revenue accruing from district forests. The Department taking credit only for the proceeds of sales of sandalwood, sales of timber and minor forest produce of State Forests, and of reserved kinds of trees wherever growing.

Changes in rules notified.

This necessitated certain changes in the accounts rules and forms, which were duly notified in the Gazette.

34. Now however that the District Forest scheme has been sanctioned, and the license system is doomed; and as the expense of working the greater part of the District Forests has been thrown on the Department, the revenue from such forests has, from the 1st October 1872 been again credited to the Forest Department. Some of the returns and forms, hitherto in use, have now thus become useless, and the duty of seeing that the forest dues are properly paid into the Treasuries, is handed over to the Forest Officers.

In 1872, revenue from District Forests again credited to the Department.

Certain forms thus made absolete.

35. To enable them to perform this important duty properly, forms of letters of advice to Treasury Officers, to receive certain moneys due under certain heads, and a form of receipt, to be granted by them, have been introduced. Immediately after the sale of any article of forest produce, the Assistant Conservator issues to the purchasers, one of these letters of advice giving all necessary particulars. The purchaser is bound within a certain fixed time to take this letter to the treasury, and pay the sum due. He is then granted a receipt in due form, and is not allowed to remove what he has bought, till this receipt has been shown to, and initialled by, the selling officer. Treasury officers are forbidden to receive any moneys said to be due to the Forest department, except on these letters of advice. The Forest officer is charged with seeing that the receipt is produced by the purchaser within the period allowed for payment. He is thus held responsible for his own proper duty, while the good rule that he is not personally to receive any money due to the Department is strictly upheld. The statement of Demands, Collections and outstandings will still be necessary, to insure accord between the Forest and Treasury officers accounts, but no necessity now exists for the submission of license registers and account sales to Deputy Commissioners of Districts, while the revenue can be collected and checked in a more satisfactory, and more expeditious manner than was formerly possible.

Forest Officers responsible for collection of revenue.

36. During 1864—65, no actual conservancy work was undertaken. Forest Officers were employed in making themselves acquainted with their districts, and introducing the new system of accounts. During 1865—66 they were still chiefly occupied in introducing the new forest rules, and in explorations. In Ashtagram several tracts of land applied for by coffee planters and others were inspected and reported on, many being for various reasons refused. Major Hunter spent much time in visiting the Nagar range which required special attention, and preliminary steps were taken for setting off forests to be turned "Reserves." In both Ashtagram and Nagar a great check was put on the felling of immature wood. Owing to the want of supervision, the supply had been always equal to the demand in quantity, if not in quality; and the fact of a constantly recurring large revenue, easily collected, had given rise to an exaggerated idea of the resources of the forests of Mysore.

Operations in Forests.

37. It was not till 1866-67 in fact, that demarcation was commenced in Ashtagram, and in 1868-69 in Nagar. In Nandidroog, it was, owing to various causes, delayed till 1870, and no lines were here cut till that year. On the 31st March 1872, the department had set off with clear cut lines, 21 feet in width, 309⅔ square miles of deciduous forests, had blazed lines round 97 miles, and set off by natural boundaries 45 square miles of ever green forests, or a total area of 451¾ square miles of State Forests.

Demarcation commenced.

Demarcation on 31st March. 1872.

38. Grazing is prohibited in all State Forests but one, that of Bilikal in Nandidroog. No felling of any sort is allowed in any of these forests, except under the orders of the Assistant Conservator; and all persons (excepting sportsmen who are admitted under certain conditions), are confined to fixed lines of road running through the forests. In the evergreen reserves "wottays", a species of reed, are allowed to be taken free of duty, but here too no felling of wood is permitted.

Areas of forests ascertained.

39. The areas of 9 deciduous forests have been ascertained by survey, and boundary maps plotted from the measurements.

Conservation of District Forests impracticable.

40. I have already in the paras on forest legislation shown what measures were prescribed for the purpose of checking waste in the District Forests, but owing to the want of establishments to carry them out, the revenue officers were unable to do much, and of conservation there was practically none.

Hoonsoor Forests transferred to Mysore.

41. In 1865—66, the Hoonsoor Forests were transferred to Mysore by the Madras Government. These, now known as the *Bégúr State Forests*, and measuring 53 square miles, lie within the limits of Mysore. In 1799, on the fall of Seringapatam. they were retained by the British Government, as a source whence the local Commissariat and Ordnance Departments should draw their supplies of wood. But on the formation of a Forest Department in Madras, some 20 years ago, the officers of that department took charge of the forests and commenced selling the produce in the general market. The original purpose for the retention of these forests was thus set aside, and they were made a source of revenue to the Madras Forest Department. This was represented by the Mysore authorities, and under the orders of the Government of India the Mysore Forest Officers assumed charge of these wooded tracts. The teak in them had been very heavily worked, and it was estimated, at the time of transfer, that the annual yield was no more than 5000 cubic feet.

Selection of teak to be felled.

Yield of Forests during eight years.

42. To insure care in felling, teak trees are now selected by the Assistant Conservators in charge, or by the Rangers, and the comparative statement now given will show that large reductions have been made in the quantity of teak felled. It exhibits the fellings during a period of 8 years 1864—65 to 1871—72, both inclusive.

Description of Wood.	1864—65		1865—66			1866—67			1867—68			1868—69		1869—70		1870—71		1871—72		Gross Totals.
	Nagar	Ashtagram.	Nagar	Ashtagram.	Nandidroog	Nagar.	Ashtagram.	Nandidroog	Nagar.	Ashtagram.	Nandidroog	Nagar	Ashtagram.	Nagar.	Ashtagram.	Nagar.	Ashtagram.	Nagar.	Ashtagram.	
Teak.	73,850	28,780	32,475	44,364	..	22,825	22,930	..	25,760	15,916	..	10,778	21.553	5501	11,693	25,474	7593	11,119	9194	3,94,305
Jungle	..	14,256	9875	8616	1668	..	10,358	1872	120	17,887	1596	1940	15,380	20,202	13,726	30,409	20,162	19,937	16,710	2,04,654

43. It will be interesting to compare the fellings of the first four years of this period with the last four, and they are set forth below.

Description of wood.	1864—165 to 1868—69			1868—69 to 1871—72			Totals.		Gross Total.
	Nagar.	Ashta-gram.	Nundi-droog.	Nagar.	Ashta-gram.	Nundi-droog.	First four years.	Second four years.	
Teak	1,84,910	1,06,990	...	52,872	50,033	..	2,91,900	1,02,405	3,94,305
Jungle	9995	51,117	5076	72,488	65,978	...	66,188	1,38,466	2,04,654

44. While therefore the fellings of *teak* were *reduced* by 1,89,495 cubic feet; the felling of *junglewood* was *increased* by 72,278 cubic feet. The cost of felling and cutting wood of either description is the same, while the selling price of teak greatly exceeds that of junglewood. Hence a loss of revenue was unavoidable, but this is by no means to be regretted, as the drain on teak was far too great.

Collection of Timber.

45. All timber in State Forests is felled and carted by contract. In Ashtagram the Department employs a forest tribe called Curambars, and pays them at a fixed rate of annas one per cubic foot for felling. The carting is done by other contractors at an average rate of annas six per cubic foot. In Nagar, wood is felled and carted on contract by a tribe of Waddars who have worked for the Department for many years. They are paid an average of four annas per cubic foot.

Sandalwood.

How collected before formation of Department.

46. Certain changes have been introduced in the method on which Sandalwood was formerly collected. From Major Hunter's reports and letters, it seems that sandalwood was ordinarily collected through the Amildars of talukhs, who employed, on their own responsibility, men called manégars who felled and prepared the wood and collected it in small local stores, called *Pattadis*, scattered over the talukhs. When a sufficient quantity had been brought in, it was sent to the divisional stores where the wood was classified, and in due course sold. On the formation of the Forest Department this system was slightly modified, the manégars being placed under the officers of the Department, but no other change was then made.

Changes found to be necessary.

47. But as the officers gained more experience in their work, and a better acquaintance with their districts, it was found that the system of collecting at *pattadis* was bad. The collection of roots was but small: there was great waste of chips: good wood was planed off and left lying about, and much peculation took place; stripped wood was left for months exposed to the action of rain and sun, the oil was drained off, and the wood thus became deteriorated.

System now pursued.

After some little trouble, it was decided that the manégars should *uproot* instead of felling the trees: that they should clear the wood of the earth that collects in the crevices: should remove the bark, and the greater portion of the sapwood, leaving but a thin skin of the latter. The trees thus roughly prepared are sent into the

large stores, and there properly prepared and classified for sale. The advantages are, that the waste of roots, the deterioration of wood, and peculation are now checked. The drawback is that the cost of carriage is enhanced, as a portion of the sapwood is now carted into stores, which when sold is fit for nothing but fuel. This disadvantage is however small when compared with the advantages gained.

Attempt to introduce the contract system.

48. In 1865-66 an attempt was made to introduce the collection of sandalwood by contract. The results were not good. Not that I think the contract system in itself a bad one. It has many advantages, but one very serious disadvantage in this particular instance. This is the difficulty of supervising contractors, and preventing their felling immature trees, as ripe sandalwood may be of any size. To really check them, another establishment of trustworthy men would be required, and even if a number of such men could be found who would accept low pay, an expenditure would be needlessly incurred which can be avoided. It is in no way to the interests of the manégars to send in large supplies of sandalwood, and as they are liable to lose their posts if they fell immature trees, I very much prefer collecting new wood through paid agency.

Contracts for collection of dead wood are given out.

49. Contracts have lately been given out, and with good results, in the Mysore District for the collection of old roots left in the ground, and of dead trees. It is easy to distinguish old wood from that newly felled, and one of the contractors who attempted to bring in new wood, was at once detected, and the whole of the new wood brought on to our books without being credited to the contractor who has since worked well.

Yield of Sandalwood.

50. The return here shown exhibits the yield of sandalwood *in tons* from 1864-65 to 1871—72; the new system of collecting by uprooting and of preparation at the large stores came into force in 1869—70. In two instances I have omitted in this return a quantity of useless wood sold chiefly at talukh cutcherries and at old pattadis. The return shows the actuals at head-stores only.

1864—65			1865—66			1866—67			1867—68			1868—69			1869 70			1870—71			1871—72			Total.			Gross Total.
Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	Nagar.	Ashtagram.	Nundidroog.	
264	158	75	199	222	141	82	190	94	257	259	76	206	269	121	337	159	107	384	379	117	340	176	179	2069	1812	910	4791

Financial Results of eight years working.

51. The following statement will show at a glance the receipts and expenditure of the department since its formation, together with the yearly net surplus from 1864—65 to 1871—72.

Items.	1864-65	1865-66	1866-67	1867-68	1868-69	1869-70	1870-71	1871-72	Totals.	Remarks.
	£	£	£	£	£	£	£	£	£	
Gross Receipts.	31,633	34,295	28,190	41,001	35,362	* 29,521	33,766	31,863	265,631	* In 1869—70, the revenue of District Forests was transfered to Land Revenue.
Expenditure.—										
Working ...	1402	4297	3698	5205	5989	4425	8106	8732	41,854	
Establishments.	5301	5476	5951	5799	6005	5999	6438	7177	48,146	
Total expenditure	6703	9773	9649	11,004	11,994	10,424	14,544	15,909	90,000	
Net profit.	24,930	24,522	18,541	29,997	23,368	19,097	19,222	15,954	175,631	

The figures are given in pounds sterling. Timber and sandalwood to the value of £2350 were supplied to H. H. the late Maharajah during the same period. These supplies were free, and the Department was not credited with the value thereof at the Treasury. It is of course entitled to take credit in its own columns however; and adding this sum to its total revenue of the eight years, the departmental receipts have been £ 267,981; expenditure £ 90,000; surplus £ 177,981.

State Forests how protected their condition.

52. The State Forests are protected by Watchers under the orders of the Rangers. The Mysore Forest Rules direct that each Forest shall be in the immediate charge of a subordinate forest officer. This expression does not, as I take it, mean watchers, and if I am right, the provision is not obeyed, as the department has not sufficient establishment. I cannot therefore report with confidence that all forest offences are brought to notice. It is very probable that the watchers (men on Rs. 6 a month) connive at petty thefts, but the executive officers generally report favourably on the state of their forests. One case of theft, which occurred last year, in which a Ranger was concerned, has been reported in its proper place.

53. There is however no doubt that those forests which have been shut up for the last four or five years have greatly improved. This is evident to me, and will be more easily perceived by the Range officers when they shall have been longer in the Province. The three senior Range officers have been barely two years in Mysore, and the improvement in these Forests cannot be so fully appreciated by them as by one who has been continuously in the Province for the last nine years.

54. We have not the means of keeping fires out of all our reserves. This can only be done in small patches, where experiments are carried on. The establishments, to protect all the Forests from fire, would have to be enormously increased, judging by the scale allowed for the protection of the Boree forest in the Central Provinces, where were employed a darogah on Rs. 80, a duffadar on Rs. 25. and eight peons. During the three months when fires were apprehended, some 10 to 15 villagers were entertained in addition to the fixed strength.

Devaroydroog State Forests.

55. Of all our State Forests none are more interesting at present than that in the Devaroydroog Hills in the Nundidroog Range. Conservation was here begun by Colonel Dobbs formerly Superintendent of the Division. This gentleman who had built himself a house on Devaroydroog, appointed two peons as watchers, and conserved a limited area of jungle round the large hill. In January 1867 before the forest was demarcated, I appointed four men as watchers and used all means then

in my power to discourage cutting of any description on several adjoining hills. In 1868 Dr. Brandis visited the forest and appeared to be pleased with what had been done. The issue of the new forest rules in 1869, immediately strengthened my hands. Measures were at once taken to greatly extend the limits of the forest, and after much correspondence, during which this department received very great aid from Captain Charles Pearse then Deputy Superintendent of the District, satisfactory settlements were made with the ryots; Rs. 600 were paid as compensation to the inhabitants of two small hamlets situated in the centre of the hills, and the Department was put in full possession of 18 square miles of land. The watching establishment was increased to six men, and the strictest conservation enforced. The demarcation lines were cut and cleared and all grazing stopped. After several cases of trespass had been investigated and successfully carried through the Courts, the neighbouring villagers saw the necessity of obeying the rules; and as planting operations shortly afterwards commenced, we thus provided labour for men who had formerly gained a livelihood by cutting fuel.

56. The result of these measures has been *most satisfactory.* Not a blade of grass has been burnt within the limits of the forests during the last six years and a half. With the exception of the clearings of scrub in portions where timber planting operations were being carried on, no cutting of any description of wood has been allowed, as I judged it best to leave the forest at perfect rest to recover itself. On many of the hill slopes new soil has formed and is getting covered with small bushes. On all sides, spaces which were blank seven years ago, are now covered with trees of various kinds, chiefly acacias, while the increase in the size of trees standing in the forest when it was enclosed, is most marked.

57. The introduction of the District Forest scheme will enhance the value of this reserve, and the time has now arrived when it may be carefully worked so as to yield a small revenue. The thinnings of the plantation have, up to date, realized about Rs. 1200.

Maddagiri Forests.

58. The Maddagiri Forests were reserved in 1870. Here portions of the hills have been shut up as in Devaroydroog, and the results hitherto are very encouraging. As however barely 3 years have elapsed since operations commenced, I shall not go into details now, preferring to wait till I can, on some future occasion, do so with more certainty.

Nundidroog Forests.

59. The Nundidroog Hill, and a portion of land to the west of it, have now been reserved for about two years. Here there is a perceptible increase in the growth of the vegetation, but unfortunately a portion of the hill was burnt during 1872—73. I have not men enough to guard it properly.

Bilikal Forests.

60. Of the Bilikal Forests (35,000 sqr. acres.) I cannot yet speak. The demarcations were not completed till 1871-72, when they were greatly extended, grazing is here still permitted, but I hope to be able ere long to restrict it to certain spots. It is a difficult matter and requires great caution in handling.

Killakaval Forest.

61. The Killakaval Forest, also in this range, has now been preserved from fire for three full years. It measures 10 square miles and is doing well. It yields bamboos chiefly, and some small timber.

62. In the Mysore Range the great bulk of the State Forests lie along the southern boundary where Mysore marches with Wynád and Coorg. Here a belt of forest land some 80 miles in length, by 10 in its greatest width, has been set off into eight blocks of State Forests. The largest and most valuable of these are respectively Ainúr Márigudi, Begúr and Kakankoté, which yield almost all the teak felled in this range.

Nagar—Kaddúr.

63. In the Nagar Range the largest of the State Forests is Lakkavalli in the Cadoor District. The Deputy Conservator reports favorably of his 1st Class Ranger Mr. D' Costa, and has reason to believe that the forest is protected as well as it can be by our small establishments.

Shimoga.

64. The same cannot be said of the Shankaragudda and Sakrebeil forests in Shimoga. The Ranger here, Babu Rau, has been found to be a dishonest man, and we cannot therefore state that these forests have been protected. The Deputy Conservator reports his inability to move freely about his forests without the aid of elephants. This point will be taken note of, and a proposal made to Government with the view of obtaining elephants for the use of the department.

65. The Hassan Range was formed into a separate charge on the 1st April 1872, and placed under an Officer from England, who had then been out some four months in India. The State Forests here are exclusively on the Ghauts, and are reported on favourably.

Re-introduction of Kumri.

66. In the Mysore Range, the forest tribe of Kurambars, are now allowed to pursue the system of kumri cultivation under the supervision and restrictions of the Assistant Conservator. This was found to be necessary, as this tribe is the only one on whom we can depend, to get our felling work done. In 1871, I was directed to report on the probable result of the re-introduction of kumri into certain parts of the Nagar Division. I visited the localities in question, and submitted my report on the 14th March 1871. The Government of India, on this report, ruled that kumri might be re-introduced in a modified form and under certain restrictions, which were that a portion of land in each village, not exceeding the total area under other cultivation, should be marked off for disposal to village labourers for the purpose of kumri cultivation. This arrangement however is to be carried out by the Revenue Survey Officers, in concert with the Forest Officers, and is therefore deferred till the survey operations are extended to these localities.

Plantations.

67. The Department has, in various places and with varying success, established timber sandalwood and fuel plantations. These operations are now progressing more favourably than was formerly the case. The increase in the number of officers, and the division of work, has conduced to these better results, which will be more clearly apparent from a perusal of the paras reporting on this description of work done in 1872—73.

68. The Department now holds altogether for planting purposes 10,264 acres. Of these 7564 are intended for the growth of fuel, 2374 for sandal, and 326 for

timber; yearly additions are being made to the timber plantations, and the extension of sandal reserves and plantations will receive attention. Almost the whole of the 7564 acres of fuel have been enclosed with hedges and ditches, and so has a portion of the sandal lots.

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests,
Mysore & Coorg.

Printed at the Central Jail Press, Bangalore:—1873.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF COORG,

1872—73.

By CAPTAIN G. J. VAN SOMEREN,

CONSERVATOR OF FORESTS

REVIEW BY THE CHIEF COMMISSIONER.

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1. The Report has been drawn up by the Conservator, Captain van Someren

INTRODUCTORY.

2. No remarks.

SPECIAL.

HEAD I.—STATE FORESTS.

FIRST SECTION.

3. No alteration has occurred in the list of State Forests as shewn in the Report for 1871—72. They are twelve in number ; the area of ten aggregating 375¼ square miles, while that of the remaining two has not yet been ascertained.

4. The demarcation of the forests was pushed on vigorously ; upwards of 88½ miles of new work having been completed during the past year, while 21¼ miles of old lines were cleared out. The whole cost incurred under this head was Rs. 2,197.

SECOND SECTION.

5. The method adopted in carrying out the enclosure of the forests, as set forth in the Report for 1871—72, has been carefully followed in the work done during the past year, and has proved to be satisfactory and successful. The support of the Superintendent, and the zealous exertions of the Forest Rangers—both Coorgs of good family and useful influence,—are stated to have largely aided in conducing to this result. The proceedings of the Department in its measures under this head, will, doubtless, continue to be carried on in a spirit of moderation, and with the fullest consideration for local circumstances and feeling.

THIRD SECTION.

Protection of the Forests.

6. There were but three cases of breach of Forest Rules, one person only being concerned in each. Convictions were obtained in all.

7. Any absolute need of an increase to the sanctioned watching-establishment of a forest, should be specially reported. Such establishment should always, as a rule, consist of men of the locality.

FOURTH SECTION.

Plantation.

8. The plantations established in Coorg up to the close of the past year, consisted of three of Teak and two of Sandalwood, with an aggregate area of 361 and 55 acres, respectively..

9. Of the former, 341 acres had been planted up—38 acres during the year under report; and 20 acres were cleared for planting during the current year. The condition of the planted portion was not altogether satisfactory; and it seems to be clear that these plantations require more attention than has hitherto been paid to them. The extension actually carried out during the past year was also very limited.

10. The results of the sowings of Sandal-seed in the two Sandal—Reserves were fairly successful; and their extension should be steadily pushed on.

11. The total outlay on these Plantations during the year, was Rs. 3,011.

FIFTH SECTION.

Yield of Forests, &c.

12. The fellings were limited to 195 Teak logs; 1,625 Jungle logs and poles; and 1,15,275 Bamboos, of which 51 logs, and 269 poles of jungle-wood, valued at Rs. 535, were issued at cost-prices to the Department, Public Works; and 500 poles and 12,000 Bamboos, valued at Rs. 358, to the 8th Madras Native Infantry at Mercara, for building their lines.

13. The collections at the Depôts aggregated 226 logs of Teak; 817 logs of Junglewood; and 90¾ tons of Sandalwood.

14. The sales of timber, &c, were, at the Depôts—Teak 317 logs; Junglewood, 122 logs; Sandalwood 89¼ tons; and, at the places where felled, Junglewood 122 logs; and Bamboos 103,275. The Sandalwood realized Rs. 464—4—0 per ton, as against Rs. 456—10—8 in 1871—72; the cost of collection being Rs. 40 per ton, as against Rs. 36—5—2.

15. Though it is stated that no growing Sandalwood was felled during the past year, the collections being wholly of old wood, the quantity *offered for sale* should have been strictly limited to 50 tons, as fixed by the Government of India; and should not have been exceeded without special sanction. The Conservator's attention is drawn to the irregularity of the course that has been taken in this matter.

GENERAL.

HEAD I.—FINANCIAL RESULTS.

16. The statement comparing actuals with estimates, shews that there was a large falling off under the heads of "Sales of timber"; "Sales on license;" and "Permit fees;" of Rs. 15,470—Rs. 3,571—and Rs. 1,929—respectively, making in the aggregate Rs. 20,970; while there was an increase of Rs. 20,691 from Sandal; and of Rs. 2,088 from minor Forest products.

17. The explanation regarding the cause of decrease in the sales of timber is hardly satisfactory; and the receipts under this head appear very small. The large increase from Sandal brought the aggregate realizations up to Rs. 2,000 in excess of the estimate; but it is to be noted that Rs. 69,500 out of the total receipts of Rs. 84,500, were realized from this head, and the rent of cardamom forests, &c. The question, of the adjustment of the outstanding cardamom-rents will be referred to the Superintendent.

18. The differences in the actuals and estimates of expenditure are explained as having been due to the work connected with stocking the small depôts, the cost of which was met from savings.

The total expenditure was Rs. 1,136 within the amount of the sanctioned grant.

19. The general financial results are summarized as follows:—

	I. Realizations	Rs.	84,424
Deduct.	Realized on account of transactions of former years	Rs. 7952.	
	To be refunded	„ 58.	8,010
	Balance	Rs.	76,414
Add.	Outstandings on account of the year	„	12,402
	Value of the year's transaction	Rs.	88,816
	II. Disbursements	Rs.	29,664
	Balance	Rs.	59,152
Add.	Difference between value of stock at commencement and close of year	„	3,543
	Net results of the year	Rs.	62,695

as against an estimated surplus of Rs. 51,600

GENERAL REMARKS.

20. The explanation furnished of the cause of the little progress made in the small depôt-system during the past year, appears satisfactory. It will doubtless take some little time for the system to work efficiently; but it can hardly fail to do so within a reasonable period, if properly controlled and managed.

CONTEMPLATED OPERATIONS.

21. These are stated to be;—

I. The felling and sale of 7,000 cubic feet of Teak; 8,000 cubic feet of Junglewood; 40 Poon and Irapu trees; 5,00,000 Bamboos; and 63 tons of Sandalwood

II. The collection and sale at the small Depôts of 1,250 cubic feet of Teak ; 1,300 logs of Junglewood ; and 250 cart-loads of Bamboos.

III. The extension of the three existing Teak, and two Sandal Plantations.

IV. The completion of the demarcation work ; the opening out of forest-roads much needed ; and some minor operations.

22. With reference to the above, the quantity of Sandalwood offered for sale will be strictly limited to 50 tons. If the Conservator can shew good reason for increasing it, the same will be reported for orders.

The work in the Plantations during the past year, was somewhat defective, and very limited. It should be vigorously, but carefully, pushed on during the current year ; and it is hoped that the next Report will shew that this has been the case ; and that the demarcation of all the forests has been completed.

23. The Assistant Conservator, Mr. H. Ring, appears to have worked well, and generally satisfactorily, during the past year ; and his labors merit my acknowledgments.

BANGALORE,
31st *July* 1873

R. J. MEADE,
Chief Commissioner.

CONSERVATOR'S REPORT.

Annual Report No. 1332, *F. dated 26th July* 1873, *on the Management and Conservancy of the Coorg Forests for the Financial year* 1872—73, *by* CAPTAIN G. J. VAN SOMEREN, *Conservator.*

I have the honor to forward the Progress Report of Forest Administration in Coorg for the year 1872—73. An appendix follows the report, which is intended to form, according to instructions received, a handy book of reference regarding the growth of the Department since its formation in 1864, and its operations since up to 31st March 1872.

INTRODUCTORY.

2. No matters of interest under this head, additional to those recorded last year, have now to be entered.

SPECIAL.

HEAD I.—STATE FORESTS AND FORESTS LEASED BY THE STATE.

3. The list of State-Forests was given in the report for 1871—72; no alterations have been made therein. The form lately ordered by the Government is entered in the next para.

Area of Reserved Forests.

Reserved Forests.	Area in 1871—72.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1872—73.
	Sq. Miles.	Sq. Miles.	Sq. Miles.	Sq. Miles.
I. Dubare...	40	. .	.. .	40
II. Dévamurchi.	25	. ...	...	25
III. Mávukal	17	...	...	17
IV. Arekerenád	50	...	..	50
V. Hatkatnád	75	..	...	75
VI. Nalkere	117	...	..	117
VII, & VIII. Vurti-Kerti	not estimated.	..	...	not estimated.
IX. Chembu and Karinád	10	..	...	10
X. Anókádu	19½	...	...	19½
XI. Ganagúru	11¾	...	...	11¾
XII. Yedavanád	10	...	...	10
Total.....	375¼	...	...	375¼

4. *Demarcation.*—The returns of work done up to 31st March 1872 shewed that 38½ miles were demarcated fully, and 3¼ miles were cut to half width. The work done during 1872—73 is now set forth in detail.

5. *Hatkatnád Forests,—No. V.*—Here 11 miles 1526 yards were cut to the full width of 21 feet at a total cost of Rs. 325—8—6. These forests are bounded on the south by the Nalkere forests, east by the Mysore boundary, north by the Lakshmana-tírtha river. It is thus naturally bounded on three sides, and demarcation is completed, except that posts have to be put up.

6. *Nalkere Forests,—No. VI.*—Here 7 miles 439 yards were cut to full width, at a total cost of Rs. 210—6—0.

7. *Arekerenád Forests.—No. IV.*—The 2 miles 1335 yards left incompleted last year, were finished off; and 9 miles, 420 yards of the old lines cleared of fresh growths. The total expenditure being Rs. 46—12—0. This forest is completed with the exception of the posts.

8. *Mávukal Forests,—No. III.*—Here the incomplete portion of 832 yards was finished, and 3 miles 80 yards of new lines cut at a total expenditure of Rs. 69—8—0. The fresh growth in 12 miles of old lines was cleared away at a cost of Rs 58—12—0

9. *Dévamurchi Forests,—No. II.*—The demarcation here was completed by the cutting of 20 miles 353 yards of new lines, at a total cost of Rs. 576—13—10.

10. *Anekádu Forests,—No. X.*—Here 15 miles of new demarcation were cut to full width at a cost of Rs. 335—8—6.

11. *Yedavanád,—No. XII.*—Here 26 miles were cut to full width at a cost of Rs. 514—9—4.

12. *Dubare Forests,—No. I.*—Here 2 miles 7 yards were cut at a cost of Rs. 59-12-0.

13. Summarized the result is:—

Demarcated.		Incomplete portions finished and cleared of old growth.		Cost.	Remarks.
To full width.		Incomplete finished.			
Miles.	Yards.	Miles.	Yards.		
85	642	3	407	2,197—10—2.	
		Add lines cleared.			
		21	475		

14. The total length of lines completed in Coorg during the two last years is (discarding fractions) 127 miles. The Assistant Conservator reports that more work would have been done in 1872—73, had it not been interrupted by fever, which disease was very prevalent, especially in North Coorg. Mukáti Sómaiya, the man in immediate charge in North Coorg, and who worked hard, has been obliged to leave Coorg for a time, his health having entirely broken down.

SECOND SECTION.

Requirements of the Population in the vicinity of State-Forests, how provided for.

15. The method pursued when enclosing forests, was detailed in para 17 of my report for 1871—72. It has been adhered to, and we have had, as yet, but one dispute. This ended in some 1,500 acres being included in the State-Forests at Mávukal. No forests have as yet been set off round villages within the lines, and when we arrive at that point of our work, we shall doubtless meet with more opposition. Hitherto we have been able to work without raising the ill will of the population, and I here wish to place on record, that the Department owes much to the support afforded it by Major Thomson, the Superintendent of Coorg, and also to the exertions of the Forest Rangers Kógandra Muddaiya, and Mukáti Sómaiya, who, in South and North Coorg respectively, worked very hard and judiciously. They are both Coorgs of good family, and men possessing some little influence.

THIRD SECTION.

Protection of the Forests.

16. In para 18 of my report for 1871—72, I gave my opinion that the watching establishment in our forests is insufficient to carry out the work demanded. In my report for 1872—73, on the Mysore Forests' Administration, I have written fully on this subject, and the remarks made therein apply equally to Coorg. The breaches of Forest Rules are given below:—

Prosecutions for Breaches of the Forest Rules.

Range.	No of Prosecutions.		Convictions obtained or still pending		Remarks.
	No. of Cases.	No. of Persons	No. of Cases	No. of Persons	
Coorg.	3	3	3	3	None pending.

FOURTH SECTION.

Improvement and Extension of the Forests.

17. *Plantations.*—Those at Karmád and Kutampolle have now been surveyed, and found to measure respectively 189 and 153 acres.

18. At *Karmád* only 20 acres were planted out, instead of 50 as was intended, owing, as the Assistant Conservator reports, to a failure in the nurseries. I inspected the plantation in March last, and was not satisfied with the work done. The old plantings of former years were certainly looking well, with the exception of one part in which weeds had been allowed to overrun the young trees, doing them much harm, and this portion will have to be replanted. I directed the Assistant Conservator to live at Karmád during the planting season of 1873—74, and to supervise the work personally, devoting more of his time and attention to it.

19. At *Kutampolle*, about 19 acres were cleared and planted. This plantation was also inspected by me in March last. It is situated among hills on the Western Gháts. All the trees growing in the more sheltered positions were looking well; but those in the more exposed places had suffered from the wind, which had damaged several trees, by twisting them. I directed that in future all exposed situations should be planted up with poon, which growing well under shade, will admit of some of the natural forest being left as a protection, while the sheltered slopes will be planted with teak out in the open. This plantation was better kept than that at Karmád, and promises well.

20. At *Anékádu* twenty acres were cleared and burnt off, and preparations made for planting up the land in 1873—74.

21. *Sandal Reserves.*—At Waddúr Ane about 30 acres of land were covered with a quantity of sandal seed dibbled in at an expenditure of Rs. 69—0—0. The sowings of 1871—72 were fairly successful.

22. At *Gangávára* in North Coorg a fresh reserve was commenced. Five acres were fenced off and seed dibbled in, and the results are very fair. This plantation will be extended this year.

23. The statement shewing the area of plantations in the new form is now given :—

Area of Plantations.

PLANTATIONS.	Area in 1871-72.	Total Cost.	Area added during 1872—73.	Amount expended during 1872—73.	Total Area up to 1872—73.	Total Expenditure incurred up to 1872-73.
	Acres.	Rs.	Acres.	Rs.	Acres.	Rs.
Karmád	169	8,011	20	1,615	189	9,626
Kutampolle	134	4,180	18	1,012	152	5,192
Anékádu	..	..	20	250	20	250
Waddar Ane	20	220	30	69	50	289
Gangávára	...	...	5	65	5	65
Total.....	323	12,411	93	3,011	416	15,422

FIFTH SECTION.

23. Actual yield of Forests, disposal of timber, &c.

FORESTS.	Teak.	Junglewood.	Bamboos.	Cost.	REMARKS.
Nálkere	195	...	...	1 3 0	Per log.
Titimati	...	231	...	1 0 3	Do.
Fasarpéte	...	452	...	1 0 3	Do.
Titimati...	...	14	74,575	...	Wood felled by Department and sold in jungles.
Urti	...	4	7,400	...	
Yedavanád	...	104	21,300	...	
Siddápura	...	269 Poles. 51 Logs.	...	...	For P. W. D., at cost price.
Anékádu	...	500 Poles.	12,000	..	For 8th M. N. I., cost defrayed by Regiment.
Total.....	195	1,625	1,15,275	...	

25. Collections at Depôts and sales.

Depôts.	Collections.			Sales			Amount in Rupees.	Remarks.
	Teak.	Jungle.	Bamboos.	Teak	Jungle.	Bamboos		
Fraserpête	...	306	...		5		45	
Hunnsúru	215	155	.	225	20	..	4,987	
Sontekoppalu	...	197	..	...	6	...	47	
Virápête		142	.	...	10	.	106	
Titimatti	11	2	.	92	81	...	1,340	
Urti	...	15	...	...		..	...	
Total	226	817	.	317	122	...	6,525	

The above shew depôt transactions only. At Urti, Titimatti and Yedavanád, 122 logs were felled by the Department, and sold at once before removal to depôts for Rs. 1419, the demand being immediate. Of bamboos, 103,275 were sold in the same way, realizing Rs. 792—3—4. These sums were therefore credited to head II, not head I.

26. The revenue realized by sale of wood on license was Rs. 257—13—8 only. This as "actuals" is far short of the estimates; but it is satisfactory to know that great waste was prevented, applications for licenses being carefully enquired into.

27. The 8th Regiment, M. N. I. was supplied with 500 jungle poles, and 12,000 bamboos. The true value of these supplies was Rs. 358; but they were given free, the Regiment simply defraying the cost of felling and carting.

28. To the Department of Public Works, 269 matti poles and 51 logs were supplied at prime cost, for the construction of wooden bridges on the Siddápura road. The true value of this wood was Rs. 534—14—0.

29. The value of these supplies of wood and bamboos does not appear in the Coorg Treasury returns, nor in the Forest Department realizations.

30. The quantity of sandalwood collected and brought to depôt and sold, is now shewn :—

Sandalwood.

Collection in Tons.	Cost.	Tons sold.	Rate.	Amount in Rupees.	Remarks.
30¾	40—0—0	89½	464—4—0 nearly.	41,434	

No growing-wood was felled. The whole collection was from decayed trees and from old roots left in the ground. It was all brought in on contract.

31. I have in my Mysore Report gone fully into my reasons for felling a larger quantity of wood than was sanctioned there. The same remarks apply to Coorg, and as all the wood brought in was simply deteriorating, and not a single growing-tree was cut, I trust that the Chief Commissioner will not consider that the spirit of the orders given me has been violated, though the letter has been departed from.

GENERAL.

HEAD I.—FINANCIAL RESULTS.

32. Actuals of expenditure and receipts as compared with estimates.

Receipts.		Estimates.	Actuals.
I. Sales at Depôts—			
Timber		23,200	7,730
Sandalwood		20,800	41,491
II. Sales on license		6,000	2,429
IV. Permit fees and cardamom rents		30,000	28,071
V. Grazing dues		200	80
VI. Minor products		1,000	3,088
VII. Confiscated wood		100	1,122
VIII. Fines		100	413
IX. Miscellaneous		1,000	..
Total		82,400	84,424
Deduct Expenditure		30,800	29,664
Balance.....		51,600	54,760
Deduct—			
Amount realized on account of former periods	7,952		
Do in excess to be refunded ...	58		8,010
Add—			46,750
Outstandings at close of 1872—73 .	12,402		
Difference between value of stock at commencement and close of 1872—73 ...	3,513		15,945
Net Results of year			62,695

Expenditure.	Estimates.	Actuals.
A. Conservancy.		
I. Timber working ... ... }	10,000	4,635
Sandal do ... ... }		3,780
II. Purchase of tools	300	82
III. Feed and keep of cattle	200	78
V. Charges for collection of minor forest products.	200	...
VI. Plantations	5,000	3,011
VI. Forest works	300	3,324
VIII. Forest surveys	500	172
IX. Experiments to determine value of timber .	100	8
X. Communications, &c.	3,000	3,234
Total	19,600	18,324
B. Establishment.		
I. Salaries	7,200	6,598
II. Travelling Allowances	3,200	3,729
III. Contingencies	800	850
	11,200	11,177
(Refunds)	...	163
	11,200	11,340
Total Expenditure.....	30,800	29,664

33. *Receipts.*—Under all heads, an increase of Rs. 24,114, and a decrease of rupees 22,090, shewing a total increase of Rs. 2,024. The details are:—

Increases.—Head I, Sale of sandalwood, Rs. 20,691. Larger quantities collected, and higher selling rates.

Head VI, Sale of minor forest products, Rs. 2,088. Higher selling rates than were anticipated.

Head VII, Sale of confiscated timber, Rs. 1,022. An arbitrary item, which it is not practicable to estimate correctly.

Head VIII, Fines and forfeitures, Rs. 313; a difficult item to estimate.

34. *Decreases.*—Head I, Sale of timber, Rs. 15,470. When I submitted my Budget for 1872—73, I applied for Rs. 13,840, for working expenses under Head A, I, and my sales were calculated at Rs. 23,200. The Government of India cut down the working expenses by Rs. 3,840, but made no alteration in the receipts. The auctions during 1872 were not well attended, though since the close of the year the market is a little brisker. Still had the receipts been reduced proportionally to the reductions made in the working charges, the discrepancy between the estimates and actuals would not have been so great.

Head II, Sales on licenses. The issue of licenses was discouraged, but stores laid up in former years are still being used by the people. The fact that when felled by Government, the wood required by ryots amounted in value only to Rs. 2,170, would seem to prove, not unsatisfactorily, that much more wood was formerly taken than was neces-

sary. I am also, I fully believe, right in stating that much wood formerly sold on license at reduced rates, was sold by ryots again, as, now that licenses are seldom issued, the demand for small wood and bamboos in the neighbouring talooks of Mysore is beginning to augment. This I attribute to the fact that the abolition of the license system in Coorg has made illegal overfelling and illegal sales more difficult than before.

Head IV, Cardamom rents, Rs. 1,129. The actual demand for the year is rupees 33,451—2—8, of which however but Rs. 22,323—11—6 have been collected. The Superintendent of Coorg being asked to direct the Subédars to collect the demands before the close of the official year, informed me in his No. 32—20 of the 18th April 1873, that he thought that not only remissions of rent, due for 1872—73, would be necessary to the amount of Rs. 11,000 or thereabout, but that it would also be necessary to ask the Government to allow a permanent reduction in the rents for the remainder of the leases. In reply, I gave my reasons (see my No. 214 of the 28th April 1873, copy submitted to Chief Commissionér) for opposing any remissions for 1872—73, and also for opposing still more strongly any reduction in the rents due for the five years of the leases still to run. The Superintendent has not yet replied to my letter, and the outstanding is still unadjusted.

Head V, Grazing dues, Rs. 120.

Head IX, Miscellaneous. Nothing fell to be sold under this head.

35. *Expenditure.—A. Conservancy and working.*—The total sum allotted in the Budget was Rs. 19,600, of which Rs. 18,324 were spent. The sanction of the Government of India to the working of the small depôt-system reached me on the 9th September 1872. The work was to be carried on out of savings, no fresh grant being made for the purpose. This was accordingly done, and hence the differences between the actuals and estimates in heads I, VI, and VIII, which chiefly furnished the money spent in stocking the small depôts. The sums were all debited to head VII, in accordance with instructions.

The increase under head X was met by a sanctioned transfer.

36. Under B, Establishments, an excess expenditure of Rs. 529 in travelling allowances was met, after sanction, from the savings under I, Salaries, which amounted to Rs. 602.

Refunds of excess payments were made to the amount of Rs. 163.

37. The financial results are now summarized in the form ordered by the Government of India.

		Rs.
Realizations..		84,424
Deduct—		
Realized on account of transactions of former years..	7,952	
To be refunded	58	8,010
	Balance....	76,414
Add—		
Outstandings on account of the year	..	12,402
Value of the year's transactions ..	..	88,816
Disbursements	..	29,664
	Balance....	59,152
Add—		
Difference between the value of stock at the commencement and close of the year 1872—73.. .. .	..	3,543
	Net Results of the year....	62,695

GENERAL REMARKS.

38. As I have stated in para 35, the working of the small depôt-system did not commence till late in the year. But little wood was sold, and that actually before being brought into depôt; see my para 25, and I have also shewn that supplies of wood obtained in former years are being used up. All this was to be expected, and it is early yet to report on the result of a system but lately commenced, and one which aims at reducing the consumption of wood, not by debarring the public from obtaining it by fair means, but by checking illegal felling and wasteful consumption.

Contemplated Operations.

39. (*a*) To fell and sell 7,000 cubic feet of teak, and about 8,000 feet of junglewood, and 63 tons of sandalwood.

(*b.*) At small depôts, to collect and sell about 1,250 feet of teak; about 1,300 logs of junglewood of various sizes, and 250 cart-loads of small bamboos, &c. To fell and sell 40 poon and iiapu trees on the Cannanore Ghát, and throughout Coorg about 500,000 bamboos.

(*c.*) To continue the extension of the Karmád and Kutampolle plantations; also at Anekádu if successful this year. To extend the sandal plantations at Waddúru Ane this year, and at Gangáwára.

(*d.*) To continue the demarcation work to open out some roads much required in the forests; and to build three forest huts.

40. The Range was in charge of Mr. Ring throughout the year. He has worked well, except at Karmád plantation, on which I have already commented.

41. His Ranger K. Muddaiya has done well. I saw with regret that this man's promotion to the grade of 2nd Ranger was not sanctioned. He has now been a 3rd grade Ranger for five years, and has uniformly worked well.

42. No remarks regarding the other subordinates appear to be called for.

G. J. van SOMEREN, *Captain,*
Conservator of Forests, Coorg.

Government Series, No. 21.

COORG FOREST DEPARTMENT.

Annual Summary of Revenue and Expenditure for the year 1872—73.

PARTICULARS.	Amount.			REMARKS.
RECEIPTS				
i. Sale of timber brought to Depôts.				* Includes Rs. 57-14-10 paid in excess of revenue in March 1873.
Timber	* 7,729	11	8	
Sandalwood	41,491	0	0	
ii. Do. removed by purchasers, &c.	2,429	9	0	
iii. Duty on foreign timber	...	...	...	
iv. Permit fees and rent of jungles, &c.	28,070	14	11	
v. Grazing dues	80	4	0	
vi. Sale of fruits, bahdl pods and other minor forest produce	3,088	3	1	
vii. Sale of confiscated timber	1,122	4	5	
viii. Fines and forfeitures	412	10	4	
ix. Miscellaneous	...	...	...	
Total Receipts.....	84,424	9	5	
EXPENDITURE.				
A. Conservancy and Working.				
i. Timber expenses.				
Timber	4,634	13	4	
Sandalwood	3,779	9	0	
ii. Purchase of tools, &c.	81	14	0	
iii. Feed and keep of cattle	78	3	10	
iv. Rent of leased forests	...	...	...	
v. Charges connected with the collection of revenue on grass, &c.	...	...	...	
vi. Plantations	3,011	4	3	
vii. Forest work	3,323	15	4	
viii. Forest survey	171	8	1	
ix. Experiments to test the value on timber...	8	8	0	
x. Communications and buildings	3,234	2	9	
Total A. Conservancy and Working.....	18,323	14	7	
B. Establishment.				
i. Salaries	6 597	15	10	
ii. Travelling allowances	3,729	3	8	
iii. Contingencies	850	1	4	
Refunds	163	0	0	
Total B, Establishment.... ..	11,310	4	10	
Total Expenditure.....	29,664	3	5	

Government Series, No. 22.

COORG FOREST DEPARTMENT.

Annual Abstract Account of Cash Transactions of the Forest Department for the year 1872—73.

Year.	Heads of Account.	Amount.			Year.	Heads of Account.	Amount.		
1872—73.	To Cash Balance in hand on 1st April 1872....	14,797	9	1	1872—73.	By Expenditure of the Department	29,501	3	5
	„ Revenue received	84,424	9	5		„ Remittances to State Treasuries	84,424	9	5
	„ Remittances from State Treasuries ...	28,134	12	10		„ Refunds of Revenue	163	0	0
						„ Amount embezzled by the late Mr. Contes written off the accounts, *Vide* Government of India letter No. 802 of the 20th June 1872, to the Comptroller General of Accounts	10,557	3	5
						„ Balance in hand on 31st March 1873 ...	2,710	15	1
						Recoverable Balance Rs. 512 0 0			
						Cash Balance „ 2,198 15 1			
	Total Rs.....	1,27,356	15	4		Total Rs.....	1,27,356	15	4

CONSERVATOR OF FORESTS' OFFICE, MYSORE AND COORG,
BANGALORE, 26*th July* 1873.

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore and Coorg.

Government Series, No. 23.

COORG FOREST DEPARTMENT.

Annual Statement of Outstandings and Liabilities of the Department on account of Contractors and other Disbursers for the year 1872—73.

Division	Departmental Debtor						Departmental Creditor.						Balance due.						Remarks
	At commencement of the year.			Recoveries in cash and value of supplies and work done during the year			At close of the year.			At commencement of the year.			Payments made during the year.			At the close of the year.			To Department Outstandings.			By Department Liabilities.			
Coorg. ...	..			28,881	2	0	28,881	2	0	14,797	9	1	16,794	8	0	31,592	1	1	2,710	15	1	...	...	...	

Government Series, No. 28.

COORG FOREST DEPARTMENT.

Annual Account of Forest Revenue for 1872—73.

Receipts.				Amount.			Disbursements.	Amount.		
Amount of revenue realized in 1872—73				84,424	9	5	Amount disbursed in 1872—73	29,664	3	5
Deduct—							Deduct amount disbursed on account of transactions of former periods	..	...	...
Amount realized on account of previous years	Rs. 7952	2	7							
Do realized in excess of the revenue	57	14	10	8,010	1	5	Balance	29,664	3	5
Add—										
Balance				76,414	8	0	Add amount due for transactions during the year			
Outstandings at close of the year				12,401	8	8	under review but not yet disbursed ..	..		...
Value of the year's transactions .. .				88,816	0	8	Real Cost of the year's transactions	29,664	3	5

Value of the year's transactions ...	88,816	0	8
Cost of the year's transactions	29,664	3	5
Balance ..	59,151	13	3
Add difference between the value of the stock at the commencement and close of the year	3,543	0	0
Net Results of the year	62,694	13	3

CONSERVATOR OF FORESTS' OFFICE, MYSORE AND COORG,
BANGALORE, 26*th July* 1873.

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore and Coorg.

Coorg Forest Department.

Stock Account of Quantities and Value of Timber and other Forest Produce on hand at the commencement and close of 1872—73.

DESCRIPTION	In Depôt on 1st April 1872.				Add received during 1872—73.				Deduct issued or sold during 1872—73.												Remaining in Stock on 31st March 1873.				REMARKS.
													Amount realized.			Difference.									
																Profit.			Loss.						
	Quantity.	Probable Value.			Quantity.	Probable Value.			Quantity.	Probable Value.											Quantity.	Probable Value.			
		Timber.																							
Teak	1,007	13,091	0	0	200	2,600	0	0	317	4,121	0	0	5,457	3	11	1,336	3	11	...	...	890	11,570	0	0	
Jungle wood	1,109	8,872	0	0	694	5,552	0	0	121	968	0	0	1,063	15	8	95	15	8	...	...	1 682	13,456	0	0	
Branch Pieces	105	150	0	0	1	1	0	0	1	1	0	0	3	12	0	2	12	0	...	...	105	150	0	0	
Total Timber ...	2,221	22,113	0	0	895	8,153	0	0	439	5,090	0	0	6,524	15	7	1,434	15	7	...	...	2,677	25,176	0	0	
	Tons.	Sandalwood.																							
Good Wood	2	640	0	0	90¾	29,040	0	0	89¼	28,560	0	0	41,434	0	0	12,874	0	0	..	...	3½	1,120	0	0	
Inferior Wood	...	...	...	...	...	...	...	...	..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Total Sandalwood ..	2	640	0	0	90¾	29,040	0	0	89¼	28,560	0	0	41,434	0	0	12,874	0	0	...	...	3½	1,120	0	0	
Grand Total	2,223	22,753	0	0	985½	37,193	0	0	528¼	33,650	0	0	47,958	15	7	14,308	15	7	...	...	2,680½	26,296	0	0	

CONSERVATOR OF FOREST'S OFFICE, MYSORE AND COORG,
BANGALORE, 26*th July* 1873.

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore and Coorg.

COORG FOREST DEPARTMENT.

Statement shewing the Number of Logs felled, sold, and remaining for the year 1872—73.

Description.	Remaining at the close of 1871—72.	Felled during 1872—73.	Total.	Sold or issued during 1872—73.	Remaining at the close of 1872—73.	Remarks.
Teak	1,007	200	1,207	317	890	
Junglewood	1,109	867	1,976	294	1,682	
Do Poles	...	769	769	769	...	
Branch Pieces	105	1	106	1	105	* Includes 16 logs and 1 branch piece of timber not actually felled during the year but brought on to the Depôt accounts.
Bamboos	..	1,15,275	1,15,275	1,15,275	...	
Total.....	2,221	*1,17,112	1,19,333	1,16,656	2,677	

Statement shewing expenditure incurred on account of Plantations in Coorg up to close of official year 1872—73.

Division.	Name of Plantation.	Previous area planted.	Area planted in 1871—72.	Area planted in 1872—73.	Total area planted.	Previous cost of formation and maintenance	Cost of formation and maintenance on area planted in 1871—72	Cost of formation and area planted in 1872—73.	Total cost of formation and maintenance on whole area planted.	Amount realized on crops in previous years.	Amount realized on crops in 1871—72.	Amount realized on crops in 1872—73.	Total amount realized on crops.	Total net cost of area planted, formation and maintenance.	Average cost per acre for formation and maintenance. In previous years.	Average cost per acre for formation and maintenance. In 1871—72.	Average cost per acre for formation in 1872—73.	Average cost per acre for formation and maintenance on whole area planted.
Coorg.	Kärmal (Teak)	119	50	20	189	5,457	2,604	1,615	9,626					9,626	45	52	80	50
	Kutumpale do	115	19	18	152	2,713	1,467	1,012	5,192					5,192	23	77	58	34
	Anekädu do	..	..	20	20	..	..	250	250					250	..	..	12	12
	Wadakanad (sandal)	..	20	30	50	..	220	69	289					289	..	11	8	8
	Gangvära do	..	..	5	5	..	..	65	65					65	..	..	13	13
	Total ...	234	89	93	416	8,130	4,291	3,011	15,422	0	0	0	0	15,422	0	0	4	5

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore and Coorg.

CONSERVATOR OF FORESTS' OFFICE, MYSORE AND COORG,
BANGALORE, 26*th July* 1873.

APPENDIX.

Sketch of the History of the Forest Department in Coorg, since its formation in 1864, *and of its operations since that date.*

Personnel. Officers.—In January 1864, Major A. Hunter was appointed Conservator of Forests in Mysore and Coorg, and on the 4th May of the same year, Lieutenant G. J. van Someren was appointed Assistant Conservator in Coorg in addition to the charge of the Ashtagram Forests in Mysore. In February 1865, Lieutenant van Someren was relieved of the Coorg portion of his charge by Mr. C. A. Dobbs, then appointed to the Forest Department of Coorg. Mr. Dobbs was in September 1866 transferred to Mysore, and Mr Edgar Ludlow was appointed Assistant Conservator in Coorg. Mr. Ludlow in November 1868 was transferred to Mysore, and Mr. J. H. Hunter took charge of Coorg. Mr. Hunter was in August 1871 transferred on reduction to Mysore, and Mr. H. R. Ring, Officiating Assistant Conservator, took up the Range and still holds it.

2. Major Hunter left India on furlough on the 20th September 1866, when Lieutenant van Someren was appointed to officiate as Conservator. Major Hunter returned to duty on the 6th December 1867, but resigning his post in the Forest Department a month later, Lieutenant van Someren was again appointed to officiate, which he continued to do till the 6th January 1869, when he was permanently appointed to the post of Conservator of Forests in Mysore and Coorg.

3. In 1864—65, the Forest Establishment in Coorg was fixed as detailed below :—

				Rs.
Controlling Office.—	1. Assistant Conservator.		.. ..	300
	1. Writer	@ 40	.. .. ..	40
	1. Mutsaddi	@ 20	.. .. .	20
	3. Peons	@ 7	.. .. ..	21
	1. Lascar	@ 6	.. .. ..	6
Forest and Work.—	1. Overseer	@ 50	.. .. ..	50
	1. Mutsaddi	@ 8	.. .. ..	8
	2. Daffédars	@ 8	.. .. ..	16
	20. Peons	@ 6	.. .. ..	120
			Total per mensem Rs..	581

4. No alteration has since been made in the numbers of these establishments with the exception of the reduction of one peon in the Assistant Conservator's Office. The pay of the present Assistant Conservator is Rs. 250.

5. In October 1869 a mutsaddi and two peons on a total expenditure of Rs. 27 a month were appointed to the charge of the Hunasúru wood-yard, a depôt for the sale of Coorg timber in Mysore. The total cost of the permanent establishment on 31st March 1872 was thus Rs. 551 per mensem, or Rs. 6,612 per annum. No portion of the Conservator's salary is debited to Coorg. It is all defrayed by the Mysore Government.

6. *Legislation.*—The first Forest Rules for Coorg were introduced in August 1865. They provided simply for the reservation of certain trees, specified the rates at which

they were to be sold, detailed certain concessions made to ryots and residents of Coorg, and introduced the license and pass-port system. The last Section (9) of these Rules provided for the stopping of cutting of any description of timber in any Government-Forest by the orders of the Superintendent of the Province, who was to exercise a general control over the operations of the Assistant Conservator.

7. By these rules, eight kinds of trees were strictly reserved at fixed rates. All other kinds were allowed free to ryots paying land revenue, while eleven kinds of trees, other than the eight referred to above, were given at certain rates to traders, and at half those rates to men not being ryots but residents of Coorg

8. Men found trading in any of the reserved woods illegally, were subjected to a fine of Rs. 50 under Act VII of 1865. This was the sole crime specified, and the sole punishment provided.

9. These rules were most incomplete, in fact they may be called useless. But owing to the subordination of the Assistant Conservator to the Superintendent, matters got on somehow for a time, without any very great inconvenience being felt. Still, as by degrees forest operations increased in the Province, and it became necessary to set apart State-forests and to demarcate them, and as the supervision of the Forest Officials became stricter, and the Conservator visited the Range more frequently, the necessity for the introduction of better and fuller rules could be no longer overlooked..

10. Accordingly on the 11th August 1871, "Rules for the better management and preservation of the Government-forests in Coorg" were issued by the Government of India. At the same time, a list of the State-Forests, the general boundary lines of which had been laid down by the Conservator of Forests, were published in the Gazette for general information.

11. By these rules, the administration of the Forests was vested in the Forest Officers, and the Superintendent of Coorg and his subordinates. The Government-forests being entirely under the control of the Conservator and his Officers. Unauthorized felling or lopping; unauthorized collection of forest products of any kind; setting fire to forests; unauthorized grazing of cattle; unauthorized ingress to forests, were all made punishable by fine not exceeding Rs 500, or imprisonment which might extend to six months. Provision was made for the disposal of drift or unclaimed timber and bamboos. Provision was made for the confiscation of axes, knives, carts, boats or other tools, vehicles or implements, as also all cattle and domestic animals used in an act constituting an offence against these rules. Such cattle or tools might be redeemed by payment of a fine. Finally, the Chief Commissioner was empowered to frame and revise rules for the sale of timber, sandalwood or other forest products by auction or otherwise, such rules being binding on all purchasers under specified penalties.

12. No trees were specified as reserved, and no fixed rates were published; the rules contemplating the sale of all woods by Government from depôts only. The small depôt system has since been introduced, and is now on trial.

13. *Accounts.*—It is somewhat difficult to report on these. The Assistant Conservator received his instructions direct from the Comptroller General, and submitted his accounts to Calcutta direct. All that the Conservator had to do with the Assistant's

money transactions was to countersign his applications for letters of credit, and to countersign his working charges and batta bills. At the request of the Conservator, the Assistant supplied him with his monthly account sales, but so little had the Conservator to do with these accounts, that the following remarks occur in his Progress Reports for 1867—68 and 1868—69.

1867—68, paras 24, 25. "The system on which the accounts are kept is so different from that in Mysore, and the Conservator has so little control, that he can have but little reliance on them. * * In para 18 of his original report, the Assistant Conservator reports that a 'new system of accounts has been received from the Accountant General, Bengal, and introduced into Coorg.' This was without any intimation to this office."

1868—69, para 18. The Conservator writes "The accounts and returns submitted with this report are as complete as I can get them, but I cannot vouch for the accuracy of the accounts, as I have no means of knowing whether they tally with those sent up by the Treasury to the Comptroller General."

14. Dr. Brandis, however, visited the Range in 1868, and in 1869, the Coorg Forest account rules were revised, and the rules provided for the Conservator being kept informed of the transactions of his Assistant. We are still working on these rules, which have been slightly modified in one or two particulars. It is desirable, however, that they should be assimilated throughout to those in force in Mysore, to which they bear a general resemblance; and draft revised rules are now being prepared.

15. *Operations in Forests.*—These were practically limited to the collection and sale of timber and sandalwood till 1871, when the demarcation of forests was taken in hand, and by the 31st March 1872 about 40 miles of lines had been cut. Plantations were commenced in 1866, when an experimental teak plantation was opened at Karmád. On the 31st March 1872, the Department had 303 acres of teak plantations, and 20 of sandal reserves.

16. Demarcation is being actively continued, and when the forests shall have been surveyed, working plans will be drawn up.

17. The following statement gives the quantity of wood felled by the Department during the eight years from 1864—65 to 1871—72, exclusive of the yield of forests removed on license.

Description of wood logs	1864—65.	1865—66.	1866—67.	1867—68.	1868—69.	1869—70.	1870—71.	1871—72.	Totals.
Teak ...	1,528	513	1,075	342	1,511	864	551	134	6,516
Jungle	17	...	100	.	306	571	114	721	1,829
Branches ..	.			305	.			..	305
Tons									Tons-
Sandalwood ...	83	116	62	99	105	96	50	62	673

18. Timber is collected as in Mysore. The trees to be felled are selected by the Assistant Conservator, or the Ranger, felled by the forest tribes, and then carted in on contract. Sandalwood up to March 1872 was collected by Monégars. On the 1st April

1873, a contract for the collection of none but old dried trees, and old roots left in the ground, was given out.

Items.	1864—65.	1865—66.	1866—67.	1867—68.	1868—69.	1869—70.	1870—71.	1871—72.	Total.	Remarks.
Gross Receipts	1,20,218	1,08,257	31,934	77,746	74,448	1,08,152	74,067	92,453	6,87,275	* Rs. 18 of this figure is "Refunds."
Expenditure—										
Working	4,688	3,995	...	...	7,175	22,833	14,786	20,714	74,191	
Establishments	4,201	8,654	...	..	9,301	10,249	9,777	10,267	52,449	
Total Expenditure... ...	8,889	12,649	11,552	13,944	16,476	* 33,082	24,563	30,981	1,52,136	
Total Profit	1,11,329	95,608	20,382	63,802	57,972	75,070	49,504	61,472	5,35,139	

19. The gross receipts and working of the Department from 1864—65 to 1871-72 inclusive are given in the following statement. The figures in the statement are given in rupees; for convenience sake they are now taken in pounds sterling and after adding to the sum Rs. 7,626 (£762) for wood given free of charge to the 8th Regiment, Madras Native Infantry shew the following results:—

Gross Receipts	..	£69,489
Expenditure	..	£15,213
Surplus	..	£54,276

G. J. VAN SOMEREN, *Captain,*
Conservator of Forests, Mysore and Coorg.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

HYDERABAD ASSIGNED DISTRICTS,

FOR

1872-73.

By A. T. DRYSDALE, Esq.,

Deputy Conservator of Forests, Berar.

REVIEW BY THE RESIDENT.

No. 1460, dated 23rd August 1873.

From—Captain G. H. Trevor, *Second Assistant Resident, Hyderabad;*

To—The Deputy Conservator of Forests, Berar.

The Resident has perused with interest your Forest Report for 1872-7 and directs me to record the following remarks.

STATE FORESTS.

2. The area of the State Forests remains the same as in the previous year, the Northern Division containing 400 square miles and the Southern 246. Only in the latter Division does there appear to have been any demarcation work left incomplete at the close of the year; how much is not very clear. You observe that the Assistant Conservator in charge of this Division has "furnished a very meagre summary of the year's operations." Other correspondence has sufficiently demonstrated the scant assistance you have received from that officer, and the way in which he has neglected his duties has obliged the Resident to bring his conduct to the notice of the Government of India. Mr. Saunders hopes that the demarcation of all the reserves in the Southern Division will be finished, as you anticipate, before the end of the current working season. There has been too much delay already.

3. The "liberal policy" referred to in Section 2 of the Report touches the most important question of the year in connection with the administration of Forests. It appeared to the Resident that the rights and privileges of the inhabitants of the Byraghur Reserve—a tract of 400 square miles—called for fresh inquiry, and he receives with much satisfaction your assurance that the rules drawn up by the Committee which conducted that inquiry under his orders have had the effect already of securing on the part of the inhabitants of the Reserve a ready obedience to all forest laws and regulations and a more intelligent appreciation of their aim and object. The evidence

of this is to be found in the hitherto unprecedented measure of success which has attended the efforts of the Department to keep down fires. Mr. Saunders hopes that the rules which are being drawn up in a similar spirit for the Southern Division will be submitted as soon as possible.

4. The increase of establishment, alluded to in para. 16, is still under the consideration of the Government of India.

5. More breaches of forest laws were brought to light in 1872-73 than in 1871-72. Altogether, conviction before a Magistrate was obtained in 132 cases, in which 339 persons were concerned. No mention is made as to the penalties that were imposed; they were no doubt slight. In only 21 cases, involving 83 persons, was the prosecution unsuccessful. Considering that all the cases were brought before a Civil Magistrate, and that in no instance was it found necessary for the Forest Officers to exercise their magisterial powers, the result is creditable to the Department under your supervision. It may be, as you remark, that more prosecutions will take place "as the members of the lower grades of the department become better acquainted with their work and the rules which govern it," but such growth of knowledge will of course make it the more incumbent on the Forest Officers to see that needless and vexatious prosecutions are avoided.

6. The thinning operations, which must, in the absence of mature timber in the reserves, supply for many years most of the revenue to be derived from State Forests, resulted in the sale of 46,432 pieces of wood, which realized Rupees 22,857. Realizations of sales in former years brought the total revenue obtained during the year from sale of timber in the reserve up to Rupees 25,734. From the Southern Division no details as to timber cut, sold, or remaining in hand, are given. You will be good enough to call on the Assistant Conservator for this information, together with an explanation as to why it was omitted in his Report.

7. The cart road to be made from Pili to Ellichpur, which forms the subject of paras. 21 and 22, will, doubtless, be of great benefit in facilitating and increasing the export of teak and other woods from the Melghat, and Mr. Saunders trusts that the completion of the preliminary survey will, as funds become available, be followed up by all practicable expedition in the making of the road.

8. Paras. 26 to 33 give a very satisfactory account of the success that has attended the efforts of the Forest Department to keep down fires. The fire path round the Raipore block, the width of which was extended last year from 60 feet to 300 yards, seems to have been an effectual preventive against fire from without, nor have any fires occurred within the block.

Of the Byraghur reserve it is recorded that "only two extensive fires occurred, and these were accidentally kindled, not by residents of the reserve, but by people from the plains. At the very least, seven-eighths of the forests, or about 350 square miles, have been saved." The Resident assents most cordially to your remark that "without interesting the people in our conservancy operations and securing their good will and assistance, no amount of labour on the part of the department will preserve the forests from fire;" but, at the same time, he would advise you to sift with great caution the opinion you have expressed as to the immunity from fire just noticed being "due entirely to the happiness and contentment of the people consequent on the privileges acceded to them by the rules referred to in para. 8."

Good and liberal rules often do produce happiness and contentment, but men of the woods are less likely to be grateful for them than to ques-

tion the utility of any rules at all. If past restrictions have pressed somewhat too hardly, any relaxation will, doubtless, be welcomed, and this is probably the sense in which your remark should be read; but then we have to bear the blame of the reflection 'why was not our knowledge of these people and their ancient privileges equal to the task of supplying before the remedy which has made them glad in the year 1872?' You will understand that the Resident does not question the good effected by the new rules: all he wishes to imply is that it is rather early to draw positive conclusions as to the happiness they are said to have brought about. If we find next year and the year after that the emigration which some persons say has taken place of late from the Melghat has been checked, we may safely conclude that the liberality of the rules under reference has largely contributed to such end.

Mr. Saunders acknowledges with satisfaction the circumstance reported in your 33rd para., *viz.*, that evidence of the good will and support of the people of Melghat in the efforts of the Forest Department to keep down fires is afforded in the fact that "applications have already been received from several of the more enlightened Patels to be allowed to burn paths round their villages in the cold weather." You add: "their applications have been sanctioned; and I hope ultimately to have a net work of fire-paths within the reserve, and in this manner to succeed in preserving the entire forests from fire."

In the Southern Division it it observed that the Garoo Mattergaon reserve—an area of 75 square miles—was burned throughout, notwithstanding that it was the only reserve in that Division in which special preventive measures against fire were taken. You attribute this result in part to a want of proper caution and vigilance on the part of the establishment, and you infer, from the Assistant Conservator's silence on the point, that neither the Ghat Boree or Pemgunga reserve escaped fire. The accuracy of this inference you have probably since tested by inquiry.

9. Your remarks on the beneficial effects already produced by the exclusion of fires from State Reserves and the principle on which plantations have been formed in the Melghat (paras. 37—40) appear to the Resident to be sound.

10. As regards the progress made in Plantations (paras. 41 to 57) it appears that up to the close of the year reported on, a total area of 721 acres has been raised at a cost of Rs. 11,138, or a little over Rs. 15 per acre. Of this, 271½ acres represent the area of the past year, 355 acres that of 1871-72, and 38 acres that of previous years.

The expenditure during 1872-73 is thus shown:—

Plantations.	Area.	Acres.		
		Rs.	A.	P.
In Melghat ...	... 549 ...	4,256	4	6
„ Oomrawuttee...	... 153½ ...	711	14	0
„ Buldanah ...	.... 8½ ...	66.	2	0
„ Bassim ...	... 10 ...	51	13	0
	Total...	5,086	1	6

Of the plantations, generally, it may be said that a fair amount of progress was made in all, excepting the four in the Southern Division, which occupy altogether 18½ acres. You attribute the failure in these "to the seed (Anjan) not having been sown till the rains were considerably advanced,"

and report that "during the current year, it is proposed to have the seed sown before the monsoon commences, so that the plants will have the full advantage of the rains, and, if necessary, artificial watering will be resorted to in the hot weather as an experiment."

11. Mr. Saunders is glad to hear that no difficulty is now experienced in the Melghat in procuring labor for plantations. He has read with special interest your account (para. 48) of the coolie corps of Gonds lately formed, and hopes the Forest Department will continue to find these Gonds valuable allies both directly as labourers and indirectly as stirring up the Koorkoos to work by showing them that they are no longer the lords of the labour market, and that if they will not work others will, and so gradually filch away from them the small earnings which at present suffice for their requirements and bound their ambition. Not that the Resident has any apprehensions of a plethora of labour in the Melghat, even though Gond coolies take root and multiply, but he would be glad to encourage the settlement of Gonds by all means in his power, as competition in all markets is good. The improvidence of the Koorkoos, and their moral deterioration as their pecuniary condition improves (paras. 64 and 65) are difficulties which, the Resident fears, no special administrative measures can reasonably contend with, but he will be glad to have any suggestions on the subject from any gentleman who has any special knowledge of it.

UNRESERVED OR DISTRICT FORESTS.

12. On the produce exported from the unreserved Forests of the Melghat, duty to the amount of Rupees 29,803-13-9 was levied. It is satisfactory to note the increase that has taken place in the export of unreserved descriptions of timber. Former reports have described how the necessity for placing some restrictions on the cutting of teak arose and how such restrictions caused an immediate fall in the revenue, because the people were disinclined at first to buy other kinds of timber. As you observe, in the Byraghur reserve, "there is no full grown teak, but all the badly grown trees are being gradually coppiced, whilst the dead and fallen timber is at the same time being utilized. The yield from these operations is at present comparatively small," for the reason already assigned, and "the supply of teak from the reserve cannot satisfy the demand from the plains, but must remain dependent on the exporting power of the Koorkoos alone, until existing lines of communications have been improved. For the cutting of teak the open Forests have been divided off into blocks, one of which is opened annually. Timber of other kinds is still allowed to be felled unreservedly." It is unfortunate that the efforts of the Forest Department to keep down fires in the open block were not successful during the year, and that out of an area of 48 square miles only 9 were saved. The fires are said to have done comparatively little harm since there were no young coppice shoots, as there will be next year, for them to destroy.

13. The Resident does not propose to enter into any detailed remark on the administration of unreserved Forests in each of the six districts. Some valuable experience has, he trusts, been gained during the year under report, which will enable us to improve our rules, and it is necessary to bear in mind that—in the words of the Deputy Commissioner of Akolah—"to be successful in our district forest management it is essential that the rules should at first be as few and simple as possible, considering that not many years ago there was no forest management at all."

14. An increase of Rs. 1,10,059-8-9 in the revenue of the unreserved Forests, calls for two remarks: (1) that in Ellichpur alone was there any decrease, and that was chiefly due to the restrictions placed on the cutting of

teak and the closing of four Nakahs; (2) the increase shown in each of the other Districts—notably the large sum of Rs. 61,507 shown against Akolah is mainly due to the transfer to Forests from the Civil Department of proceeds of sale of grass, &c., on waste lands.

The decrease in Nakah receipts in the Buldanah District demands explanation. You are therefore requested to call for a report on it, and to submit the required information to the Resident.

15. The financial results of the year's operations are stated to be an increase in the gross revenue of Rs. 1,07,133-9-8 and in the net revenue of Rs. 1,24,483-10-2, whilst the expenditure of the department has decreased by Rs. 17,390. Rs. 89,824 of the increase are due to the transfer to forests of the revenue from waste lands hitherto credited to the Civil Department. The decrease in expenditure is due to no grant having been required in 1872-73, as in 1871-72, for the construction of Forest Bungalows.

16. The Resident regrets to hear that the health of the establishment under your control suffered in the year under report, as compared with preceding years. On the whole, he has the pleasure of thinking that, except in the Southern Division, as already noticed, the year has been one of good work and progress, and that your own zealous supervision has had much to do with the favourable results reported. Mr. Saunders will be glad if the Government of India, in filling up existing promotions in the Department, should be able to confirm you in your present officiating appointment, as constant changes of officers are certainly not conducive to the efficiency of forest administration. The services of Mr. Ballantyne also deserve acknowledgment. The names of the two Darogahs mentioned in your 91st para. will be noted.

17. In the 70th para. of the report mention is made of the assistance you have received from "Captain Mackenzie in particular and the Civil Officers of the Ellichpur District generally." Mr. Saunders gladly avails himself of this opportunity to thank Captain Mackenzie for the willing and valuable aid he has now for some time past rendered to forest administration in the Melghat.

DEPUTY CONSERVATOR'S REPORT.

Annual Report, No. 453, dated Chickalda, 12th June 1873, on the management and conservancy of the Berar Forests for the Financial year 1872-73, by A. T. DRYSDALE, ESQ., *Officiating Deputy Conservator.*

I HAVE the honor to submit the Progress Report of Forest Administration in the Hyderabad Assigned Districts for the year 1872-73.

INTRODUCTORY REMARKS.

STATISTICAL DATA AND FOREST LEGISLATION.

2. The only new measures that have been introduced during the year, and which therefore call for notice in this report, are:—

New measures introduced.

1*st*.—The preparation of a set of rules defining the rights and privileges of the inhabitants of the Byraghur Reserve.

These rules were drawn up at a forest conference held at Oomrawuttee in August last, under instructions from the Resident. They have given general satisfaction and have worked with the best possible results, as is testified by the success that has attended forest conservancy operations in this tract during the year.

The rules were published in the *Residency Orders* of the 20th January 1873.

2*nd*.—The introduction of a new set of rules for the management of the District Forests of Akolah and Buldanah—somewhat similar in their details to those in force in the Bassim and Woon Districts.

A further reference will be made to these rules when treating of the districts to which they refer.

On their introduction in the commencement of March 1873, it became necessary to withdraw the following Nakahs in the southern division, which were established under the former rules for the taxation of forest produce exported from the Adjunta Hills, all such taxation being now effected through Tehsildars and Patels:—

1. Koathlee.	6 Mulsoor
2 Baundy.	7 Allagaon.
3. Gadazgoan.	8. Pathoor.
4. Lakanwara.	9. Wagullee
5. Dewulgoan.	10. Punawatee
11 Mahu.	

3*rd*.—The transfer in the northern division of the Komai Nakah to Bhyram and the establishment of an additional Nakah at Kasode subordinate to Boldie. Komai being in the Baitool district, there used to be continual differences occurring between my subordinates and those of the Central Province's Forest Department, and these differences often ended in people being doubly taxed for their produce. Bhyram besides presented two great facilities for a Nakah, which were wanting in Komai, *viz*., a good and constant supply of water and easy accessibility for carts.

The Nakah at Kasode was opened chiefly for the convenience of exporters of wood from the open block of the Melghat unreserved Forests.

It entailed no extra establishment and gave exporters a double chance of selling their produce, as if they failed to obtain a sale at the Kasode bazar held on Sunday, they could without difficulty carry their produce on to Boldie in time for the bazaar there on Monday.

Both changes have proved very successful, financially, and have also given great satisfaction to the people of the hills, as well as those of the plains.

Rights and privileges of inhabitants of State Forests in Southern Division.

3. I may mention that rules have also been drawn up defining the rights and privileges of the inhabitants of the State Forests in the southern division, but their submission for sanction is delayed, pending settlement of a difference of opinion between the Deputy Commissioner, Woon, and myself on the subject of grazing within the Kehlapur reserve.

PART I.— SPECIAL.

HEAD I.—STATE FORESTS AND LEASED FORESTS.

SECTION 1.

AREA, BOUNDARIES, DESCRIPTIVE ACCOUNT.

State Forests

4. The State Forests remain the same in number and area as last year.

Given in the form prescribed in letter from the Government of India, Department of Agriculture, Revenue, and Commerce, No. 26/1564, dated 30th December 1872, they are:—

Area of reserved Forests.

	Area in 1871-72.	Added during the year.	Excluded or transferred to other heads.	Total. remaining in 1872-73.
	Square miles.	Square miles.	Square miles.	Square miles.
Northern Division.				
Byraghur	400	...	...	400
Southern Division.				
Garoo Mattergaon	75	...	...	75
Ghat Boree	50	...	...	50
Pemgunga	70	...	...	70
Kehlapur	50	...	...	50
Small tracts of Mangla, Jaolgaon, Renkapur and Dapura	1	...	...	1
Total.	646	...	...	646

Demarcation of Byraghur Reserve.

5. The final demarcation of the Byraghur reserve was shown in the Report for 1871-72; and in the northern division, therefore, nothing remains to be noted under this head. Periodical clearances of the boundary lines will, however, have to be made as scrub jungle and coppice shoots spring up.

Demarcation of Reserves in Southern Division.

6. In the southern division the Assistant Conservator exhibits the following expenditure on demarcation work:—

	Rs.	A.	P.
Ghat Boree	142	13	6
Pemgunga	124	8	9
Kehlapur	112	0	0
Total...	379	6	3

Except as regards the Kehlapur Forest, the result of the above expenditure has not been stated, and there is no time now to make any reference on the subject without delaying the submission of this Report. The Assistant Conservator has furnished a very meagre summary of the year's operations, and under this section merely remarks that the demarcation of the Ghat Boree and Pemgunga reserves has been completed, whilst 48 miles of the Kehlapur boundaries have been cut. In the latter, Mr. Morrow notes that he has not yet erected pillars, as the grass was so thick at the time of demarcation that it was impossible for him to decide on the best places for them to be built.

7. On my late inspection tour in the southern division, I found that nowhere had the boundary cuttings been made according to the prescribed plan. Lines had only been cleared on the tops of hills and plateaus, the ravines and sides of hills being invariably left untouched. This accounts for the small expenditure shown—as, for instance, Rupees 112 for cutting 18 miles in the Kehlapur Forest, or a little less than Rupees 2-6-0 per mile. I personally explained to Mr. Morrow how the work should have been done, and I hope he will have completed the demarcation of all the reserves by the close of this working season. At present the only reserve that has been thoroughly finished is Garoo Mattergaon, and this was done during 1871-72.

HEAD I.—STATE FORESTS AND LEASED FORESTS.

SECTION 2.

REQUIREMENTS OF THE SURROUNDING POPULATION, PRESCRIPTIVE RIGHTS

Byraghur Reserve

8. During the past year a very lengthy correspondence has taken place on the subject of the demarcation of the villages situated within the Byraghur reserve, and of the rights and privileges of their inhabitants. This correspondence resulted in a Committee, with the Commissioner as President, being convened at Oomrawuttee, where rules were drawn up in settlement of the above points under the provisions of rule 16 of the forest rules.

* Appendix A.

A copy of the rules is annexed.*

9. Besides the privileges conceded by these rules, the inhabitants of the reserve have been permitted to purchase all dead or fallen teak trees in their villages at half the rates obtaining at the Pili Depôt—a concession which has been highly appreciated, and which has worked most satisfactorily.

It has in fact placed these people on a much better footing than their neighbours in the unreserved Forests, for in many villages the dead and fallen teak trees furnish the inhabitants with as much timber as they have leisure or inclination to take to the bazaars, whilst the small price they have to pay for the timber is more than compensated for by the better sale they obtain for it than for the small and badly grown teak of the unreserved Forests.

And lately it has only been with regard to procuring teak that residents of the reserve have perhaps been worse off than those of the open forests, for while the latter have had to pay for their grazing and minor forest produce, the former have enjoyed both these items free.

10. The liberal policy, however, which has been adopted with reference to the inhabitants of the reserve has been amply repaid by the ready obedience they have given to all forest laws and regulations, as well as by the willingness with which they have invariably rendered assistance to the Department when called upon to do so. Indeed, they have already commenced to evince a decided interest in the *protection* of their forests, turning out to extinguish fires before being summoned even by the watchers; and effectually preserving the grass and fruits in their villages from the depredations of outsiders.

Reserve in the Southern Division.

11. Rules have been drawn up in the same liberal spirit defining the rights and privileges of the inhabitants of the reserves in the southern division, and will shortly be submitted for sanction.

Izarah villages.

12. I may here note that the difficulty referred to in the 29th and 30th paras. of the Report for 1871-72, regarding the treatment of the Izardars or leaseholders in the Pemgunga and Kehlapur State Forests, has this year been satisfactorily disposed of by ruling that these men are "at liberty to cut such timber as they and their villagers may require for building purposes in the villages, if there are any, or, indeed, for building purposes anywhere within the leased area, no matter whether in the villages or in the fields; for the manufacture of cultivating implements and appliances of every kind, and for the purpose of clearing land for cultivation."

HEAD I.—STATE FORESTS AND LEASED FORESTS.

SECTION 3.

PROTECTION

Permanent Establishment.

13. No changes have taken place in the permanent establishment as sanctioned by the Government of India in Financial Resolution No. 440-F., dated 13th August 1870.

Additional temporary establishments entertained.

14. To the temporary establishments, however, entertained from time to time under the authority of the Resident, the following additions have been made :—

1*st*.—One jemadar and 3 watchers for the protection of the open block of the Melghat unreserved Forests at a monthly cost of Rupees 70.

2*nd*.—One jemadar for the Ellichpur district forests, to conduct the working of the Babool buns.

A revision has also been made of the Woon and Bassim district forest establishments. This was rendered necessary on the introduction of the new rules referred to in para. 2.

15. The above changes have resulted in an increased expenditure of Rupees 360 in the cost of the present establishments over those shown in Appendix A. to the Report for 1871-72.

Having only recently revised the whole forest establishment of the Province and submitted a detailed modification statement of the same for sanction, it would appear unnecessary for me to forward with this report a list of the permanent and temporary establishments as at present existing.

Such will be sufficiently apparent from the explanations above offered.

Revised Establishment.

16. In the revised modification statement, I have proposed that, with the exception of the Melghat and Oomrawuttee Nakah establishments, all present temporary establishments be made permanent. This, together with an increased rate of pay recommended for a few members of the establishment, makes the cost of the proposed permanent scale amount to Rupees 707 *per mensem* over that of the present scale.

Rupees 480 of the above, however, represents cost of establishments now temporary; so that, in reality, the increased expenditure recommended amounts to only Rupees 227—an increase which I trust may be thought justifiable, considering the steady rise that has taken place in the revenue of the department for the last four years.

Forest offences.

17. The following is a statement of prosecutions that have been instituted during the year for breaches of forest rules.

Every case was tried by a civil magistrate, it in no instance being found necessary for the Forest Officers to exercise their magisterial powers :—

Prosecutions for breaches of the Forest Rules.

Districts.	No. of prosecutions.		Convictions obtained.	
	No. of cases.	No. of persons.	No. of cases.	No. of persons.
Ellichpur	39	90	30	76
Oomrawuttee	5	10	5	9
Akolah	25	44	19	33
Bassim	13	66	10	22
Buldanah	5	11	5	11
Woon	66	201	63	188
Total ..	153	422	132	339

Compared with 1871-72, there has thus been an increase of 115 and 333, respectively, in the number of cases tried and persons prosecuted, and of 103 and 270 in the number of cases proved and persons convicted.

Considering the widely spread area of forest land in the Province and the amount of produce exported, the number of prosecutions, though larger than in the previous year, cannot but be looked upon as insignificant.

A still further increase must be expected as the members of the lower grades of the Department become better acquainted with their work and the rules which govern it.

Head I.—State Forests and Leased Forests.

Section 4.

MANAGEMENT AND IMPROVEMENT.

Result of thinning operations of 1871-72.

18. The operations commenced in 1871-72 on the left bank of the Seepna river of cutting over all old teak stems from which young poles were growing at too great a distance from the ground ever to mature into timber, have proved fully as successful as were anticipated.

The stock shoots from the stumps have in some instances reached the height of 8 feet, and in general the stools have coppiced well.

Besides, a fair amount of reproduction has resulted from the clearance from this area of all creepers and underwood, and still further reproduction may be expected to take place in the ensuing rainy season.

Operations of 1872-73.

19. During the past year 18,000 teak stems of similar growth were cut over on an area of about 2½ square miles, at a cost of Rupees 1,016-13-9.

From the sound timber there were obtained—

Small logs	4,428
Poles	9,910
Small pieces	32,094
Total	46,432

which on sale realized Rupees 22,857-7-6. In addition to this the sum of Rupees 2,877-3-6 was realized on account of sales of former years, so that the total revenue obtained during the year from sale of timber felled in the reserve amounted to Rupees 25,734-11-0.

Repairs to roads.

20. The roads alluded to in para. 45 of the report for 1871-72 were again repaired this year at a cost of Rupees 287-8-0, so as to enable the above wood to be readily exported to the plains.

21. The subject of improving the Melghat roads and so opening up this wild tract of country is one which has received considerable attention during the year; and the Executive Engineer of the East Berar division is now engaged on a detail survey of a line suitable for carts between the forest depot of Pili and the plains.

The preliminary survey has already been completed and the line determined on. From Pili the road will run along the left bank of the Seepna river to the foot of the hill near Bawai, cross the dividing ridge there at the Sirrasbun ghat, then follow for a short distance the present road to Silona, and branch off to the left to Gattang, at which village commences the descent of the Gattang ghat. From the foot of the ghat the road will follow the left bank of the nulla as far as Kuanah, thence to Barad ghat on the edge of the plains, and straight on to Gaolkhera and Ellichpur.

The Executive Engineer calculates the total length of the road will be about 35 miles, and the probable cost Rupees 4,500 per mile.

22. The great advantages of such a road can hardly be overrated, as besides placing the inhabitants of the reserve in a position to obtain a readier and better sale than now for their agricultural produce, it will enable a large quantity of full grown timber of unreserved, but still very useful varieties, to be utilized. At present this timber is of little value, for, if felled, it cannot be exported, unless pared down into logs of very small dimensions.

Such a road will also enable this department to furnish a much larger supply of teak to the inhabitants of the plains than at present, for hitherto the supply has been regulated by the quantity the hill people are able to export, and not by what the forests are capable of furnishing without injury to themselves.

At the rate thinning operations have been carried on for the last two seasons, it will probably take about 150 years before all the badly grown teak trees in the reserve have been cut over.

Export trade in wood.

23. The export trade is still almost entirely in the hands of the koorkoos, and must remain so, pending the improvement of existing communications, for residents of the plains will never commence to cut and take away timber themselves, so long as in addition to having to face the bad climate of the Melghat, they must necessarily run the risk of losing or seriously injuring their cattle from the present terrible roughness of the roads.

24. On the opening up of the Melghat, there will be abundance of work for both the koorkoos and the people of the plains, for the latter will never be able to bring the timber out of the steep ravines on to the cart tracts. Such must invariably be done by the koorkoos, as no other class of men can compete with them at rough work of this sort. The hill men will thus always enjoy a share of the wood-trade, even supposing a large proportion of the residents of the plains took to importing their own timber.

25. The construction of good cart tracts through the Melghat will be the work of years, but much relief might be afforded in the meantime by the grant of a small sum annually for improving the present main outlets by clearing them of stones, levelling the ghats, and reducing the gradients of the steepest places. This grant might be debited half to the civil and half to the

forest department, and either department might be entrusted with the work as might be deemed convenient.

I am aware that specific recommendations on this subject have gone in from the Deputy Commissioner, and have, I believe, been forwarded on with the Commissioner's approval.

Clearing out of old stems in Southern Division Reserves.

26. In the southern division, the Assistant Conservator reports that some thousands of badly grown trees have been cut over in the Pemgunga reserve and are selling fast. He also mentions that similar operations have been commenced in the other reserves of the division; but he has failed to give any details of the amount of timber cut, sold, or remaining in hand.

The timber statements which accompany his report are all blank, which is extremely unsatisfactory.

Tracks preserved from fire.

27. The following is a comparative statement of the area of forest tracts preserved from fire during the last two years :—

Area of Forest Tracts protected from fire.

Forest tracts protected from fire.	Area in 1871-72.	Total cost.			Area protected in 1872-73.	Amount expended in 1872-73.			Total area protected up to 1872-73	Total expenditure incurred up to 1872-73.		
Melghat.												
Raipoor block	14,240	102	1	8	19,200	954	6	2	33,440	1,356	7	10
Byraghur reserve .	1,18,400	...	.		2,06,720	46	13	0	3,25,120	46	13	0
Woon District.												
Kehlapur	32,000	.	..	..	32,000	.	.		64,000	..	.	...
	1,64,640	102	1	8	2,57,920	1001	3	2	4,22,560	1,403	4	10

At an extra cost of Rupees 599-1-6, there has thus been an increased area of 93,280 acres protected in 1872-73, compared with 1871-72.

Raipoor block

28. The past is the fourth year that special steps have been taken to exclude fire from the Raipoor block, which occupies an area of about 30 square miles.

In the month of January a path 300 yards wide was burned round the forest, and this has been entirely successful in preventing fires entering from without. Inside the block no fires have occurred during the year. As usual, a temporary establishment of 8 watchers at Rupees 8 each *per mensem* has been entertained to patrol the path during the hot weather The total expenditure incurred on the above measures amounted to Rupees 954-6-2. Thus :—

	Rs.	A	P.
Clearing fire path	741	0	6
Pay of temporary watchers... ...	213	5	8
Total	954	6	2

Byraghur Reserve.

29. In the Report for 1871-72, it was explained that an attempt had been made for the first time during that year to keep down fires as much as possible within the Byraghur reserve, and that about half the area, or 200 square miles, had been saved. It was further explained that the greater number of fires that occur-

red originated outside the reserve, and that measures would be adopted in the following year to prevent such fires again effecting an entrance. Accordingly, towards the close of the cold weather, when the grass is comparatively green and does not burn readily, a path was cleared all round the reserve. This was done by the watchers themselves, assisted by a few coolies, at a cost of only Rupees 46-13-0. The grass was lighted along the boundary line and extinguished on the reserve side, but allowed to burn unchecked in the opposite direction till it went out of itself from the heavy dews which fall at night during this period of the year.

30. The path proved an effectual stoppage to outside fires. Several fires, however, broke out inside the reserve, but they were speedily got under by the inhabitants before any material damage had been done.

Only two extensive fires occurred, and these were accidentally kindled, not by residents of the reserve, but by people from the plains.

At the very least seven-eighths of the forests, or about 350 square miles, have been saved.

The following statement exhibits the number of villages in the jungles of which fires have taken place wholly destructive or partially so:—

	Inhabited villages.	Uninhabited villages.
Unburned	81	68
Partly burned	9	5
Entirely burned	4	8
Total ...	94	81

Causes of success.

31. The great success that has attended the efforts of the Department during the past year to keep down fires within the reserve is, in my opinion, due entirely to the contentment and happiness of the people, consequent on the privileges conceded to them by the rules referred to in para. 8. Without interesting the people in our conservancy operations and securing their good will and assistance, no amount of labor on the part of the Department will preserve the forests from fire.

32. On the subject of the above privileges, Mr. Ballantyne in his annual report writes, "I believe the granting of free grazing and free collection of Mowa, and more than anything else, letting the koorkoos collect the old fallen wood within their respective village boundaries, and selling the same to them at a cheap rate, has had a most beneficial effect upon the inhabitants of the reserve. The only danger now is that the inhabitants of the reserve may be rather oppressive on outsiders."

Mr. Ballantyne notes that he has already received several complaints from persons living without, against those within, the boundary line for ejecting them rather roughly, when found collecting Mowa or grazing cattle in reserved limits.

Applications from villages to burn fire-paths.

33. And to show that we have really succeeded in gaining the good will and support of the people in our efforts to keep down fires. I may mention that applications have already been received from several of the more enlightened Patels to be allowed to burn paths round their villages in the cold weather. Their applications have been sanctioned; and I hope ultimately to have a net work of fire-paths within the reserve, and in this manner to succeed in preserving the entire forests from fire.

Garoo Mattergaon Reserve.

34. In the southern division the Assistant Conservator reports that the Garoo Mattergaon reserve was the only one in which any special measures were taken to exclude fires.

It is on all sides naturally protected, with the exception of a small portion of the western boundary, and here a path was cleared to a distance of about 2½ miles. A temporary establishment of 8 chuprasses was also entertained to assist the permanent watchers in keeping down fires. These measures have, I regret to say, proved an entire failure, for by the end of March the whole of the reserve had been burned. The expenditure incurred on the above measures amounted to Rupees 104-13-0. Thus :—

	Rs.	A.	P.
Clearing fire-path	22	14	0
Pay of temporary watchers	81	15	0
Total	104	13	0

35. This is the first time that the Garoo Mattergaon reserve has been burned. In the two previous years no fires of any consequence occurred. It must, however, be remembered that the grass during the past year was of a much ranker growth than during either of the two previous years, owing to the heavier rain-fall of 1872. Still I cannot but think that had the establishment only observed due caution and vigilance the whole reserve, or at any rate the greater part of it, might easily have been saved.

In rankness the grass of the Garoo Mattergaon reserve cannot at any time be compared with that of the Melghat.

Other Reserves.

36. Mr. Morrow does not state whether fire has been kept out of the Ghat Boree or Pemgunga reserves, and, therefore, I infer that they also have been burned, more especially as a large area of the latter reserve had been burned prior to my inspection of it in March last. He, however, mentions that up to date of his report, *viz.* 25th April, no fires had occurred in the Kehlapur reserve.

Beneficial effects of exclusion of fires.

37. The beneficial effects of the exclusion of fires are beginning to be most marked in the Raipoor block.

Spaces, which a few years ago were nearly blank, are now filled with different kinds of self-reproduced plants, and these have in every instance checked the luxuriant growth of grass, while in some cases they have entirely eradicated it.

The nature of the reproduction depends wholly on the description of seed trees in the vicinity. Where teak is numerous or exists at all, there is always a proportionate quantity of its seedlings. Teak reproduces itself perhaps more freely than any other tree in the reserve, but to ensure the young plants living, it is necessary that the present coarse grass should be destroyed and be replaced by grass of a finer description.

As explained in the 60th para. of my report for 1871–72, this is now being brought about by the prevention of fires.

At the commencement of the rains there are always thousands of teak seedlings wherever seed-producing trees are to be found, but most of them are killed later on in the season by the grass as it gains strength and shuts out light and air.

38. On entering the block, besides the greater amount of reproduction, one cannot help noticing the healthy appearance of the trees in general, and more particularly of those from 5-15 feet in height. These latter are straight and vigorous in their growth, and possess clean and healthy looking bark, whilst in jungle where fires are common, such trees are stunted and crooked in appearance, and invariably have their stems severely scorched. Sometimes the trees

are destroyed altogether by the fire, but in every case their growth suffers a decided check.

39. The great point to be aimed at now is, I consider, to keep down the rank growth of grass by inducing the natural production of trees of sorts, (and this the exclusion of fires is gradually accomplishing): if they happen to be of valuable kinds, so much the better, but any trees are preferable to none. The useless ones can be thinned out afterwards as opportunity offers, and steps be taken to replace them by more valuable varieties.

40. Plantations should, in my opinion, only be made to supplement natural reproduction. There are many extensive blanks, which would take years to fill up if left to themselves, and these are the places that specially call for artificial planting. In the Melghat, it is on this principle alone that plantations are formed.

Plantations.

41. The following is a detailed statement in the form lately prescribed by the Government of India of the area under plantations at the close of the year :—

Area of plantations.

Plantations.	Area in 1871-72	Total cost.			Area added during 1872-73.	Amount expended during 1872-73.			Total area up to 1872-73.	Total expenditure incurred up to 1872-73.		
Melghat.	Acres.	Rs.	A.	P.	Acres.	Rs.	A.	P.	Acres.	Rs.	A.	P.
Peeli	12	650	0	0	...	173	0	0	12	823	0	0
Rakidoh	13	94	14	2	...	61	0	0	13	155	14	2
Sembodah	2	18	0	0	..	10	0	0	2	28	0	0
Doogaputty	11	360	0	0	...	75	0	0	11	435	0	0
Peepulcotta	120	2,287	7	10	...	720	0	0	120	3,007	7	10
Saoli	30	241	3	2	...	140	0	0	30	381	3	2
Bujroo	82	957	0	0	...	352	0	0	82	1,309	0	0
Lubu	85	36	10	0	194	2,725	4	6	279	2,761	14	6
Total...	355	4,645	3	2	194	4,256	4	6	549	8,901	7	8
Oomrawuttee.												
Bhewapore teak plantation ...	14	72	8	0	11	77	3	6	25	150	5	6
Mahadeokora teak and babul...	5	38	0	0	.				5	38	0	0
Cheroree do.	10	60	0	0	15	138	11	0	25	198	11	0
Seoneekoord do.	12	60	0	0	12	103	3	0	24	163	3	0
Oomrawuttee tree plantation..	45	1,088	8	6	29½	392	12	6	74½	1,481	5	0
Total*	86	1,319	0	6	67½	711	14	0	153½	2,030	14	6
Buldanah												
Boarkhaida	8½	88	7	0	...	66	2	0	8½	154	9	0
Bassim.												
Betura	...	...			7	46	8	0	7	46	8	0
Plangla	...	...		.	2	4	6	0	2	4	6	0
Pandurna	...			...	1	0	15	0	1	0	15	0
Total...	8½	88	7	0	10	117	15	0	18½	206	6	0
Grand Total .	449½	6,052	10	8	271½	5,086	1	6	721	11,138	12	2

* The figures here do not agree with those shown in Form No. 21, being less in 1871-72 by Rupees 260 and in 1872-73 by Rupees 240, or in both years by Rupees 500. This sum is on account of pay of Chuprassees for watching the Babul buns in the District, and should, properly speaking, have been charged to temporary establishments under head A-V., although hitherto it has been debited to plantations.

There was thus a total area of 721 acres raised at a cost of Rupees 11,138-12-2, or a little over Rupees 15 per acre.

Of this, 271½ acres represent the area of the past year, 355 acres that of 1871-72, and 38 acres that of previous years.

I should mention that of the area shown for 1871-72, only 135 acres were really planted up in that year.

The remaining 182 acres were only half finished by the end of March, and had to be completed in 1872-73.

Plantations of 1872-73.

42. The details of the area of the past year are :—

Melghat	194	acres.
Oomrawuttee	67½	„
Bassim	10	„
Total	271½	„

The 194 acres in the Melghat are situated near the village of Lubu in the Seepna valley, and are a continuation of the plantations established there in previous years.

43. A new system of planting was adopted on this area. The ground being cleared of jungle, T. shaped notches were dug at a distance of 6 feet from one another. The lines of the T's. were each one foot long by 2 or 3 inches deep, and were made with a few strokes of a "khodalee".

15 seeds were put into each notch and slightly covered over with the earth originally taken out. The seed being for the most part fresh, only a small quantity of it germinated last year.

The remainder may be expected to germinate during the approaching rainy season.

44. Although the Pili and Doogaputty plantations were burned by the fire that broke out in the Raipoor block in 1871-72, they do not appear to have suffered much.

At the end of the hot weather the injured trees in both plantations were carefully cut over level with the ground, and most of the shoots that sprung from the stools have already attained a height of 7 feet.

45. All the plantations suffered more or less from frost in January last. Where the plants were not protected by grass, the leading shoots of many dried back several inches. The trees, however, that were most effected by the frost were the mango and mowah, many of those presenting the same appearance as if they had been burned. Their leaves withered and dropped, and a few of their branches died altogether.

No trees, however, that I am aware of, were entirely killed, and most of those injured have already recovered.

46. The total expenditure on the Melghat plantations during the year amounted to Rupees 4,256-4-6. Thus :—

	Rs.	A.	P.
Purchase of seed	162	0	0
Clearing grass and jungle	2,038	0	0
Making notches and sowing seed	1,102	0	0
Filling blanks	354	0	0
Nurseries	401	0	0
Digging pits	109	5	2
Pruning	11	0	0
Compensation for land resumed	40	0	0
Sundries	38	15	4
Total...	4,256	4	6

Plantations of the current year

17. During the current year it is proposed to plant a further area of 100 acres on the pit and of 200 acres on the notch system. To supply plants for the former, a nursery of about an acre in extent was formed last September on the banks of the Seepna river. The beds were made 3 feet wide and the whole length of the nursery, a space about a foot broad being left as a path between them. 1,024 seers of seed were sown about an inch below ground, and the beds afterwards covered over with a thick coating of grass to prevent evaporation. Watering has already commenced, and the plants will be transferred to the pits about the middle of July, by which time they will have gained considerable strength.

A portion of the seed sown was obtained from Burmah, the remainder in Berar and from the Central Provinces.

18. No difficulty is now experienced in the Melghat in procuring labor for plantations.

Labor in Melghat.

A cooly corps of Gonds has been formed somewhat similar in its organization to that recommended a few years ago by Mr. Saunders.

It consists of a nucleus of 40 Gonds, who receive employment all the year round. During the working season, when more hands are required, the corps is increased by the employment of the friends and relations of the permanent coolies. These Gonds were formerly residents of the Baitool district, and they have now settled down for good at Pili, where they have built a village for themselves separate from the Koorkoo one. The establishment of the corps has brought about a complete change in the Koorkoos. No pressure of any kind is now required to induce them to labor. They work willingly whenever asked, and in fact often come of themselves to seek employment.

The Gonds are even better workmen than the Koorkoos. At piece-work where a Koorkoo will earn 5 Annas a day, a Gond will often earn about double. Thus, pitting is invariably done by piece-work at the rate of 10 Annas per 100 pits. A Koorkoo seldom digs more than 50 pits in a day, whereas it is no uncommon occurrence for a Gond to dig 80.

The corps is besides a great assistance to the department in keeping down fires, for if a fire breaks out anywhere near Pili, as actually happened during the past year, from 100 to 200 hands can at once be brought to bear upon it. On the occasion referred to, the whole of the Gond village turned out, including even the women and children, and the fire was in consequence speedily extinguished.

49. Before concluding my remarks on the Melghat plantations, I may mention that last hot weather a supply of Rhododendron (*Rhododendron arboreum*) and cypress (*cupressus torulosa*) seed was received from the Inspector General of Forests for trial at Chickulda.

The Rhododendron seed was unfortunately damaged, and none of it germinated. The cypress seed, however, came up freely, and there are now about 1,700 plants alive, and averaging 6 inches in height. These will be transplanted during the rainy season.

50. An effort was also made during the year to introduce the *Kattang*, or large variety of Bamboo, into the Byraghur reserve. The seed was sown broadcast, and a fair quantity of it germinated at the commencement of the rains. Most of the plants, however, died during a long break that occurred before they were sufficiently strong to withstand the heat.

Some seed was at the same time sown in beds at Chickulda, and came up freely.

Above 2,000 plants are now alive, and these will be transferred to the reserve next monsoon.

Plantations in Oomrawuttee District.

51. During the year no new plantations were formed in the Oomrawuttee district, it being deemed preferable to extend those already in existence. The seedlings from the nursery, referred to in para. 76 of last year's report, were planted at 6 feet apart towards the end of June along both sides of the Bhewapore nulla, in continuation of the teak plantation formerly established there, and are reported by the Forest Darogah to be at present in a very healthy condition. They have received no watering, the layer of grass that was placed round them in the cold weather being found to keep the soil sufficiently moist.

The waste land on either side of the area put under teak was sown with babul on the notch-system, and the plants are said to be progressing favorably.

The total area added to the Bhewapore plantation was 11 acres, 6 of this being teak and the remainder babul.

Cheroree Plantation.

52. 15 acres were also added to the babul plantation at Cheroree. Seed was sown in furrows at six feet apart after the first heavy fall of rain, and free germination took place, but at the commencement of the hot weather a fire, which had broken out in the hills, extended to the plantation, and caused considerable damage, in consequence of which the greater part of the area will have to be re-sown during the current year.

Seonee Khord plantation.

53. On the same system, a further area of 12 acres was sown at Seonee Khord.

Anjan *(Hardwickia binata)* was mixed with the babul, and germinated equally well, but most of the plants were afterwards eaten by rats. The babul that is left is, however, sufficient of itself to cover the ground.

Tree plantation at Oomrawuttee.

54. The whole of the 29½ acres added to the tree plantation at Oomrawuttee was placed under babul, such being, as explained in last year's report, the only tree that has any chance of flourishing on so poor a soil.

Of the above area, 21 acres were sown in furrows, and 8½ acres on the notch system.

55. It is much to be regretted that a finer site was not originally chosen for this plantation. The present soil is very shallow, in many instances not being more than 6 inches in depth, and nowhere being above three feet.

The Deputy Commissioner writes that the ground occupied by the plantation would in all likelihood "be more profitable if it was sold every year for grazing purposes, or if it was kept as a runnah and the grass sold when fit to cut"

It would, however, be a pity, I consider, to abandon the plantation altogether after so much labor and money have been expended on it. There is only a further area of 57½ acres to be sown, and it is hoped that the whole of this will be taken up during the current year. At present, the grass is annually sold on all blank spaces and wherever the plants are old enough not to require its shade, whilst in a year or two there will be no harm in allowing the grass to be cut over the entire area of the plantation.

Grazing, however, cannot be permitted until the trees have attained sufficient height and strength to render them safe from cattle.

56. The plantations established in former years in the Oomrawuttee District are, without exception, progressing satisfactorily.

Plantations in Southern Division.

Of the four plantations in the southern division, and occupying in the aggregate an area of 18½ acres, I regret to say none was successful. I am inclined to attribute the failure to the fact of the seed—Anjan—not having been sown till the rains were considerably advanced.

The seed germinated in sufficient quantity, but all the plants died during the hot weather.

I have doubts as to whether plantations of Anjan will succeed at all in South Berar without artificial watering, the rain-fall there being so small.

57. During the current year, it is proposed to have the seed sown before the monsoon commences, so that the plants may have the full advantage of the rains, and, if necessary, artificial watering will be resorted to in the hot weather as an experiment.

HEAD I.—STATE FORESTS AND LEASED FORESTS.

SECTION 5.

YIELD AND WORKING OF THE FORESTS.

58 Under this head there is nothing to record, there being no full grown timber in Berar. All the operations as yet carried on have been undertaken in the interests of conservancy, and have accordingly been treated of under Section IV.

PART I.— SPECIAL.

HEAD II.— UNRESERVED OR DISTRICT FORESTS.

Unreserved Forests.

59. The subjoined is a comparative statement of the area of unreserved Forests for the last two years. The figures call for no remarks in particular, and I shall therefore proceed to describe the working of the Forests in each district separately.

Area of unreserved Forests.

		Area in 1871-72.		Added during the year.		Excluded or transferred to other heads.	Total remaining in 1872-73.	
		Square miles.	Acres.	Square miles.	Acres.		Square miles.	Acres
Ellichpur...	Melghat Talook ...	1,100	...	...	...	...	1,100	...
	Babul buns of Ellichpur and Durriapoor Talooks.	15	233	...	334	...	157	567
Oomrawuttee.	Fuel reserves ...	6,050	...	.	...	...	6,050	...
	Babul buns ...	14	35	...	...	...	14	35
Akolah		43½	...	14	...	22½	85	...
Buldanah*		468½	...	19½	..	21½	466½	...
Bassim		769	...	...	...	..	769	..
Woon		1,188½	...	..	...	..	1,188½	..
	Total ...	9,648½	268	33½	334	44	9,638	602

Northern Division.

Ellichpur District.

60. In the report for 1871-72, it was explained that the chief supply of timber, grass, and other forest produce for this district, and in fact for the whole of the Poorna valley, was derived from the Melghat unreserved Forests, and the system was sketched on which it was proposed to work these forests for the future.

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* The change in area is due to the late re-adjustment of the boundary between Berar and His Highness the Nizam's Dominions.

61. The accompanying map shows the compartments into which the forests have been divided, as well as the order in which they will severally be opened.

The portion painted green comprises the Byraghur reserve, whilst the brown triangular space inside this area represents the Raipoor block.

The river at the base of the latter is the Seepna, in the vicinity of which all thinning and plantation operations have hitherto been carried on.

The towns at the foot of the hills marked by a black point enclosed in a circle of red are those in which wood bazaars have been established, and where the produce of the Melghat is weekly exposed for sale.

Working of Block No. 1.

62. Block No. 1 of the unreserved Forests was opened on the 1st October 1872, and below is given in tabular form the details of the teak exported up to the end of March 1873.

Statement of Teak exported from the open block of the Melghat unreserved Forests.

Bazaars.	Carts		Bullock loads.		Kurrass.		Head loads		Yokes.	Total No. of pieces of teak wood exported in 6 months.	Duty levied at bazaars.		
	No.	Pieces.	No.	Pieces	No.	Pieces.	No.	Pieces.			Rs	A	P.
Kullumkar ...	108	3801	4259	18,553	.		. .	...		22,354	2,561	8	0
Jhree . ..	...	..	1815	13.580	1,664¾	6,058	1,083½	3,258	79	22,975	2.707	11	0
Boldie	. .		1157	5984	1,97 1½	7,525.	3,016½	16,401	..	29,910	2,930	1	0
Damungaon ...	...	...	15	62	149	465	96	159	15	701	168	8	0
Akoli	...	...	449	3196	1,318	5,137	2,279½	13,092	13	21,438	1,827	7	0
Neemkera ..	...	...	461	2592	77	201	152	556		3349	326	8	0
Sonala	...	..			...	.	49½	92	...	92	6	3	0
Kasode .. .	...	...	21	434	937	4,051	589	2269	..	6754	1023	2	0
Total .	108	3801	8177	44,401	6,122¾	23,437	7,266	35,827	107	107,573	11,551	0	0

In six months there have thus been a total of 107,573 pieces exported, on which duty was levied amounting to Rs. 11,551. Almost the whole of this wood was taken out by the hill tribes, and calculating that they realized on the sales a profit of three times the receipts from duty, their gains would amount to Rupees 34,653.

If to this be added three times the duty collected on produce of unreserved kinds, or Rupees 94,609-8-3, and twice the value of the teak sold at Pili, or Rupees 51,469-6-0, the sum, or Rupees 1,80,731-14-3, will equal approximately the amount derived by these people during the past year from trade in timber.

Taking the figures of the census report of 1867, and assuming the number of families (one 5th of the population) to be still 6,763, the above sum would yield, if equally divided, nearly Rupees 27 to each family.

63. The receipts of the wood traders in reality, however, must have been considerably greater, for many of the people, as, for instance, those who make sufficient money from cultivation alone to supply their wants do not trade in wood at all, and besides in the above calculations, I have under rather than over estimated the rates of profit. Further, no allowance has been made for the receipts from sale of head loads of grass and fire-wood, on which no duty is levied, and regarding which, therefore, no statistics are available.

Improvidence of the Koorkoos

64. It is much to be regretted that the Koorkoos are such an improvident race, and that their easily earned gains are so seldom spent to advantage.

At present the greater part of their receipts from wood sales instead of remaining in the country and being laid down in its improvement passes into the hands of the foreign "Kallals," or spirit distillers; for the Koorkoos never think of laying anything aside for bad seasons, and the only wants they have to supply with the money are clothing and condiments—their fields generally furnishing them with a sufficiency of grain.

65. As the pecuniary condition of the people is improving, I very much fear that their moral one is retrograding. From constant intercourse with the inhabitants of the plains they are losing their former character for honesty and truthfulness, whilst drunkenness appears to be on the increase. On the latter subject Mr. Ballantyne, in his annual report, writes: "if some check be not put upon the liquor traffic in the Melghat the Koorkoos will soon drink themselves off the face of the earth. It is a great delusion to think they cannot live without spirits, for the best Koorkoos morally and physically are teetotalers. Their children are invariably healthy, and do not die off in infancy like their drunken neighbours; their fields are well cultivated; and they are generally contented"

Produce exported from the unreserved Forests

66. From the past year I have commenced to collect details of the amount of produce other than teak wood taken from the unreserved Forest of the Melghat, and the following is a statement of the exports for which duty to the amount of Rupees 29,803-13-9 was levied. I regret not being able to give details at present for the balance of revenue, *viz.*, Rupees 1,732-10-4, as until the return of the Nakah pass-books to this office, no reliable information can be afforded, and the books are only returned after all the passes have been issued.

List of unreserved Timber and other produce exported from the Melghat during 1872-73.

BAZAARS	Unreserved Timber.				Firewood			Lime.	Charcoal			
	Carts	Kurras	Bullocks, Ponies or Donkeys.	Head loads.	Carts.	Camels.	Bullocks, Ponies or Donkeys.	Carts.	Carts.	Bullocks, Ponies or Donkeys.	Head loads.	Camels
Jamode ...	48	141		458	112		160			40	136	
Sonala		1102	190	520	393		200			157	200	
Jhiree . .	750	2941	473	897	698		420		135	100	193	
Boldie	125	3235	200	1150	1005		1364	12	20	70	722	25
Akolie .	337	1260	100	1261	689		722			128	410	
Neemkera	535	1943	614	1085	812	..	1264		10	40	404	
Damungaon .	1,065	2219	274	1612	594		786	..			606	
Gowlkera		2155		1460	361		1442	20	101	1922	100	
Komai . .		1605	30	1442	539	15	314		1	220		
Kallumkar ...	50	454	90	505	82		283	.	.			
Total Duty.	5820 0 0	8527 8 0	615 15 0	2298 12 0	2642 8 0	3 12 0	8869 6 0	32 0 0	534 0 0	836 9 0	346 6 0	25 0 0
Total Produce	2910	17055	1971	10390	5285	15	6955	32	267	2677	2771	25

List of unreserved Timber, &c.—(Continued.)

BAZAARS.	Grass.			Lac.		Teak leaves, (bundles)	Bamboos.	Bamboo Tatties.	Roots & Fruits.		Gum.			Miscellaneous.			Total.
	Carts.	Bullocks, Ponies or Donkeys.	Camels.	Bullocks, &c.	Head loads.				Carts.	Head loads.	Carts.	Camels.	Head loads.	Carts.	Bullocks, &c.	Head loads.	
Jamode	330	192	...	...	...	368	11,500	90	...	...	...	...	...	...	16	...	
Sonala	65	184	...	...	35	445	11,500	162	...	26	...	...	...	.	6	12	
Jhiree	610	765	.	25	170	235	32,100	272	40	.	.		36	106	20	325	
Boldie	499	1048	...	20	70	115	38,500	32	...	...	10	80	.	20	40	...	
Akoli .. .	700	842	.	13	200	1027	20,380	100	...	...	...	...	.	.	70	137	
Neemkera ..	400	1318	200	...	250	550	23,946	75	...		.	.	..	..	30	160	
Damungaon ...	405	563	...	...	157	300	26,299	67	...	...	.	.	...	...	64	586	
Gowlkera... ...	445	3328	..	...	...	497	9,967	...	...	...	...	...	..	...	...	...	
Komai	675	992	..	15	..	480	22,005	521	...	...	...	...	.	25	7	92	
Kullumkar	215	155	.	...	...	256	3,500	21	..	...	..	...	...	...	...	152	
Total Duty. .	3,108 0 0	1,148. 6 0	75 0 0	73 0 0	330 12 0	267 1 0	1,996 15 9	95 3 0	60 0 0	3 4 0	30 0 0	120 0 0	9 0 0	453 0 0	106 8 0	376 0 0	29,803 13 9
Total Produce...	4,144	9,187	200	73	882	4,273	199,697	1,533	40	26	10	80	36	151	213	1,504	Grand Total...

It is satisfactory to find that so large a quantity of timber of unreserved descriptions has been exported. The demand for such timber will, I consider, annually increase as its various good qualities become better known, and I hope in the current year to show a still further expenditure of it.

People are no doubt beginning to apply it now to many purposes, for which nothing but teak used formerly to be employed.

Rules regarding Teak cutting fairly observed in open block.

67. On the whole, the rules regarding the cutting of teak in the open block have been fairly observed, and the trees have, with few exceptions, been felled level with the ground.

A good many cases, however, have been brought to my notice, in which differences have occurred between the amount of teak actually taken to the bazaars and that entered in the passes issued by the block establishment.

In some instances the differences were owing to the carelessness or dishonesty of the people themselves, and in others to neglect on the part of the establishment. Considerable inconvenience has thereby resulted both to this Department and to the exporters, and I purpose in consequence abolishing passes from the date of opening block No 2, and in their stead giving trial to a system of wood branding.

All timber prior to being taken to the bazaars will then be marked with a stamping hammer. Koorkoos and others unable to read will under this system be able of themselves to prevent the possibility of any of their wood being confiscated, for they will under the circumstances not start for the bazaars until every piece has been branded.

Fires in open block.

68. I regret that the efforts of the department to keep down fires within the block have not met with the same success as inside the reserve, although a path was burned round it in the cold weather at a cost of Rupees 46-13-0. Out of an area of

48 square miles only 9 have been saved. All the fires that occurred are reported to have been kindled by "mowah" collectors. Several portions of the block were, as if purposely, lit at the same time, and it was on this account that so large an area was destroyed, as whilst the establishment was engaged in extinguishing one fire, another in an opposite direction would be gaining strength.

It is some consolation, however, to know that the fires did comparatively little harm, since there were no young coppice shoots, as there will be next year, for them to destroy. Every effort must be made in the ensuing year to prevent fires occurring, and with this view, I have proposed that "mowah" be given free in the unreserved Forests in the same manner as in the reserved Forests, only conditionally on the grass being preserved. All villages in which fires occur will forfeit their right to free "mowah" for the following year.

General management of the Melghat Forests.

69. The working of the Melghat Forests—both reserved and unreserved—is now, I consider, satisfactorily established on a permanent footing. In the reserve there is no full grown teak, but all the badly grown trees are being gradually coppiced, whilst the dead and fallen timber is at the same time being utilized.

The yield from these operations is at present comparatively small, but the reason for this has already been explained, and it has also been shown that the supply of teak from the reserve cannot satisfy the demand from the plains, but must remain dependent on the exporting power of the Koorkoos alone, until existing lines of communications have been improved.

For the cutting of teak the open Forests have been divided off into 15 blocks, one of which is opened annually. Timber of other kinds is still allowed to be felled unreservedly, and will continue so until the necessity for imposing restrictions becomes clearly apparent.

70. The above arrangements have been introduced during the two years I have held charge of the Berar Forests, and as my tenure of office may possibly be brought to a close shortly, I would take the present opportunity of recording how much I am indebted to Captain Mackenzie in particular, and to the Civil officers of the Ellichpur District generally, for the success which has attended their introduction. I need not allude to the many difficulties I have had to encounter, except to say that in all of them my hands have been greatly strengthened by the support received from the officers above mentioned.

As is only natural, the introduction of the arrangements has met with a good deal of opposition on the part of the people, and there have been several inquiries into the working of the Forest laws in consequence. One of these, and a very searching one, has just been completed, and it is satisfactory to know that nothing has emanated therefrom in any way prejudicial to the Department. On the contrary, the working of the Department has been generally approved of, and it has been found that every possible step has already been taken to lighten such measures of conservancy as were in any way irksome to the people, whilst no restrictions have been imposed that were not actually necessary.

Working of the Babul buns in the Poorna Valley.

71. As proposed in para. 88 of the Report for 1871-72, when referring to the desirability of working the babul buns of Berar as coppice on a rotation of 15 years, experimental operations were commenced last cold weather with the object of ascertaining the surest and cheapest mode of raising a fresh growth of babul to supplement the produce of the coppice stools, for at present, owing to the distance at which the trees as a rule stand from one another, the full quantity of timber is not realized that the land is capable of producing. The experiments are being made on 100 acres in each of the Districts of Ellichpur, Oomrawuttee and Akolah, and the result will form a subject for report during the current year.

System adopted.

72. The following is the system pursued.

Having selected from 8 to 10 well grown and healthy trees per acre to act as standards and shed-seed, the remaining trees are felled level with the ground, the stools being afterwards neatly cut over with a "bussola."

With the thorns of the babul a strong hedge is then erected round the "bun" in order to keep out cattle of all kinds, the balance of the thorns, as well as the entire yield of timber being stacked for sale on a cleared piece of ground outside the hedge. Seed is afterwards sown in T. shaped notches at 6 feet apart.

The lines of the Ts. are each 1 foot long by 2 or 3 inches deep, and are made with a few strokes of a "khodalee."

Twenty seeds are sown in each T., and the earth re-placed, so as to leave the seed about one inch below ground.

The standard trees will be removed when reproduction is thoroughly established.

Cattle will only be excluded for 3 or 4 years. As soon as the top shoots of the trees have attained sufficient height to be beyond their reach, they will be re-admitted.

By the above plan reproduction is expected from three distinct sources:—

1*st*.—From the coppice shoots.
2*nd*.—From the seed sown.
3*rd*.—From the seed shed by the standard trees.

And to give the seed that falls naturally from the standard trees a better chance of germinating, and to ensure its being spread over the entire area, a herd of sheep and goats will be allowed to feed in the "bun" for about a week prior to the commencement of the rainy season.

Work performed by Ellichpur Establishment.

73. Regarding the operations of the year in the Ellichpur District Forests, the Deputy Commissioner writes:—

"The chief work of the establishment was preparing a register accurately defining the limits of each babul 'bun,' with reference to the Survey demarcations, so that they can be now plotted down on the village maps.

"The whole of the 499 buns were so examined; and scattered as they are between the two Talooks of Ellichpur and Durriapoor in the lands of 193 villages, the work was one of time, but it has been completed.

"When it was finished, I began a register containing the details of an accurate survey of each "bun" with reference to the quality of its timber, &c. Seventy-five "buns" have been so surveyed, and the work will be carried on to completion as rapidly as possible.

"In addition to this, under your own personal instructions, the establishment got at the village of Konewurda a lesson in coppicing and preparing for reproduction. This system, if carried out intelligently and with care, ought to be beneficial in every respect.

"Seven "buns" were pruned systematically—also a babul avenue along 12 miles of road.

The cost of pruning the buns was ....Rs.				65	15	0
Do. do. 12 miles of avenue ... ... „				41	14	0
Total...				107	13	0
By sale of pruning buns...	32	6	0			
Avenue	55	14	0			
				88	4	0
Loss Rs.				19	9	0

Proceeds up to date of sale of Timber cut	Rs. 190	0	0
The Konewurda coppicing experiment cost	„ 150	0	0
Profit Rs.	40	0	0

"There is besides wood in store estimated by senior watcher to fetch Rs. 350.

"There should have been no loss, I think, on the pruning operations, and that there was I attribute to a want of interest and zeal on the part of the senior Forest watcher. He has also been unable to effect rapid sales at Konewurda. By a late change, however, you have strengthened the agency at my disposal, and I hope it will work well."

Revenue of Ellichpur District Forests

74. Compared with 1871-72, there has been a falling off in the revenue of the Ellichpur unreserved Forests of Rs. 17,232-15-1.

This decrease is attributable chiefly to the stoppage of general teak cutting in the Melghat and to the closing of the four Nakahs, which formerly existed to the east of Komai.

These measures have resulted in a decline in the Nakah revenue of Rupees 16,250-2-11.

If, however, for the sake of fair comparison, the receipts of the Nakahs for April and May 1871, the two months when general teak cutting prevailed in the Melghat, and of the same months of 1872, be deducted, there will remain a balance in favor of the latter year of Rs. 6,615-12-4. Part of the general decrease in revenue is also to be accounted for by the grant of free grazing in 1872-73 to the inhabitants of the Byraghur reserve, and by the abolition of the custom formerly in force of levying a double duty from such Koorkoos as failed to pay for their grazing by a certain date.

Oomrawuttee.

75. No change has taken place in the system of working the wood-lands in the Oomrawuttee district. Similar registers to those in Ellichpur are being prepared of the babul buns, of which also an area of 100 acres is being cut down and planted up again on the system described in para. 72.

In re-sowing this area an attempt will be made to introduce the "sissu" tree, a quantity of the seed of which has been procured from the Punjab.

Several of the buns have also been pruned departmentally during the year.

Steps are being taken besides to increase the growth of wood in the Oomrawuttee hills by sowing broadcast a quantity of the seed of the more common varieties of trees to be found there. The seed has been collected in the Melghat, and will be sown at the end of the hot weather in the block that has last been worked—arrangements being made for excluding cattle from the area sown.

These hills, it will be remembered, are purposely set apart for the supply of fuel and grass to the city and station of Oomrawuttee, but hitherto nothing has been done to aid reproduction in them. They have merely been divided into five blocks, one of which is opened annually, and the consequence is that few or none of the trees can attain a greater age than 4 years—an age at which they cannot be expected to yield fertile seed.

The revenue of the district has increased by Rs. 21,368, of this Rs. 2,377-1-0 is, properly speaking, revenue of 1871-72. The remainder is due for the most part to the larger realizations obtained from sale of grass, grazing, and fruit on waste lands.

Akolah

76. The same measures with reference to the babul "buns" in the Akolah district are being adopted as in Ellichpur and Oomrawuttee.

From the 1st March the southern division Nakahs—situated partly in the Akolah and partly in the Buldanah districts for the taxation of forest pro-

duce exported from the Adjunta hills—were withdrawn, and in their stead a system of forest management was introduced somewhat similar to that obtaining in the Woon District. Under this system 14 descriptions of timber trees are reserved and made procurable only on application to the civil officers, timber of other sorts being obtainable on permit from Patels.

Fuel is free to the inhabitants of the district, when it is not carried away in quantities greater than head loads beyond the boundary of the village in which it is cut. Otherwise it is taxed by Patels.

Duty is also taken by Patels on all minor forest produce according to a fixed schedule. Both Patels and Putwarees receive a percentage on their collections.

The system is reported to have worked successfully so far, although the Deputy Commissioner anticipates it will require modifying in some villages where the Patels are unable to read and write

The Deputy Commissioner also remarks, what is no doubt true, *viz.*, that the system provides mostly for the collection of forest revenue, and places little check on the felling of timber. It must, however, be remembered that at present there is no very great scarcity of timber, and that to be successful in our district forest management, it is essential that the rules should at first be as few and simple as possible, considering that not many years ago there was no forest management at all. After the people have become accustomed to the present rules, it will be no difficult task to introduce a rotation system by the grouping together of villages, or even by the sub-division of the villages themselves, if large enough Till the past year it has been the custom to credit to the Civil Department the proceeds of sale of grass, &c., on waste lands, and this, together with the fact of Rupees 23,419-13-0 of the receipts of 1871-72 being credited in 1872-73, accounts for the general revenue of the district being Rs. 61,507-0-4 more in 1872-73 than in the previous year.

Southern Division.

Buldanah

77. The Forests in this district are worked on the same system as those in Akolah.

Notwithstanding a falling off in the Nakah receipts, the revenue for the year is Rupees 7,297-4-0 more than in 1871-72.

The Nakah revenue for the 11 months ending 28th February 1873 amounted to Rupees 2,890-12-3, against Rs. 4,623-5-6 for the same period in 1871-72. This decrease I cannot satisfactorily account for, and the Assistant Conservator has furnished no explanation. It may possibly be due to the effects of the bad harvest of 1872.

Woon.

78. The rules for the management of the district Forests in Woon were described in para. 108 of last year's report. They have worked, the Deputy Commissioner writes, satisfactorily on the whole, and have resulted in an increase to the revenue of Rupees 14,380-6-5. It will be remembered that formerly there was no forest management whatever in this district. 12 trees merely were reserved, the rest were allowed to be cut without restriction of any sort. Captain Szczepanski in his report draws attention to the high rate of duty obtaining on teak. There has lately been a rather lengthy correspondence on this subject, and proposals have already been submitted for the reduction of the rates.

Regarding Izarah villages the above Officer remarks: "the reckless destruction of wood in leased villages has been checked, and the cutting of tamarind, mowah, and mango trees has been stopped. On the other hand, facilities have been given to the people for obtaining wood from cultivated land for agricultural and domestic purposes"

Bassim.

79. Except as regards the disposal of grass and grazing, which are now sold under the

settlement rules, the working of the Bassim Forests is very similar to that of the Woon Forests.

The rules were only introduced in August last, and have resulted in an increase of Rupees 5,566-10-7 in the receipts of the past year over those of 1871-72.

Revenue of unreserved Forests.

80. The following is a comparative statement of the revenue of the unreserved Forests for the last two years :—

DISTRICTS.	1872-73.			1871-72.			Increase.			Decrease.		
Ellichpur	51,052	5	7	68,285	4	8	.	..		17,232	15	1
Oomrawuttee	58,097	5	7	36,729	2	2	21,368	3	5	..	..	
Akolah...	64,194	11	2	2,687	10	10	61,507	0	4	.....		
Buldanah	10,467	5	8	3,170	1	8	7,297	4	0	.....		
Woon	32,631	8	4	18,311	1	11	14,320	6	5	.....		
Bassim	6,833	1	8	1,266	7	1	5,566	10	7	.....		
Total ..	2,23,276	6	0	1,30,449	12	4	1,10,059	8	9	17,232	15	1

The causes of variation in revenue have already been explained in the foregoing paragraphs. The unreserved Forests of every district have now commenced to be systematically worked, and though few of these systems can be said to be perfect, as far as the conservancy of the forests is concerned, still, I consider, a good foundation has been laid on which to work improvements in this direction in the future.

And experience has already shown that conservancy measures should only be introduced gradually and with caution, otherwise the minds of the people become disturbed, and discontent and ill-feeling towards the department invariably result.

PART II.—GENERAL.

HEAD 1.

FINANCIAL RESULTS

Financial results.

81. The following are the financial results of the past, compared with those of the previous year :—

	Receipts.	Expenditure.	Surplus.
1871-72 ...	*1,52,727 15 11 ...	1,00,446 10 4 ...	52,281 5 7
1872-73 ...	2,59,861 9 7 ...	83,056 9 11 ...	1,76,764 15 8

During the past year there has thus been an increase in the gross revenue of Rs. 1,07,133-9-8 and in the nett revenue of Rs. 1,24,483-10-1, whilst the expenditure of the department has decreased by Rs. 17,390-0-5.

Items of increase and decrease.

82. The principal items in which an increase of revenue has taken place are: "sale of timber brought to depot by Government Agency," "Sale of Timber," &c., removed from the Forests by purchasers, "grazing dues," and "sale of fruits," &c. Whilst "permit fees" is the only item in which any marked decrease has occurred.

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* In the Report for 1871-72 the receipts were shown as Rs. 1,55,605-3-5, but under the orders of the Government of India in reviewing the Report the sum of Rs. 2,877-3-6 on account of outstandings was deducted, thus leaving a balance of Rs. 1,52,727-15-11.

Causes of increase and decrease.

83. The increase under "sale of timber" is owing to the more extended felling operations undertaken in the Byraghur reserve; the increase under "sale of timber," &c., removed from the forests by purchasers" and the decrease in "permit fees," to the transfer to the former head, under orders of the Government of India, of the revenue of the Nakahs, which used formerly to be credited as "permit fees"; the increase under "grazing dues" and "sale of fruits, &c.," to the transfer to Forests of the revenue from waste lands hitherto credited to the Civil Department.

The decrease in the expenditure of the department is due to no grant being required for the construction of Forest bungalows. In the previous year the grant under this head amounted to Rs. 17,670.

Comparison of regular estimate with actuals.

84. Owing to the Government of India not having passed orders in detail on the regular estimate for 1872-73, and to my not yet having received a copy of the regular estimate as revised at Hyderabad, it will be impossible for me here to do more than compare the totals of the regular estimate with those of the actuals accounting generally for any differences that may exist.

Under receipts there is an increase of Rupees 59,861-9-7, the regular estimate having been entered at Rupees 2,00,000.

In the regular estimate, as prepared in this office, the receipts were calculated to be Rupees 2,51,000.

The increase is due for the most part to larger receipts than were anticipated having been realized from sale of grass, &c., on waste lands.

85. Under expenditure the actuals show a decrease of Rupees 14,581-8-7, which is to be accounted for from the fact of no felling operations and comparatively little plantation or demarcation work having been undertaken in the southern division, whilst in the northern division work has been done cheaper than was expected, and there has been a considerable saving besides in the pay of the Deputy Conservator.

PART II.—GENERAL.

HEAD 2.

GENERAL REMARKS.

Revision of system of forest accounts desirable.

86. The time has now arrived when I consider effect might with advantage be given in Berar to the system of forest accounts as prescribed in resolution of the Government of India in the Financial Department No. 1406, dated 18th October 1871, and such might be brought about without any further increase of office establishment than that lately applied for. The system of accounts at present prevailing, a sketch of which was given in this office No. 916—Financial—dated 21st December 1871, although securing due check over the receipts and expenditure of the department, makes the office of the Deputy Accountant General the only one in which the accounts are recorded. This arrangement has begun to prove a source of great inconvenience, as without applying either to the Executive Officers or to the Deputy Accountant General, it is impossible for this office to ascertain at any time further details of account than those shown in the monthly cash books, of which copies are alone retained.

Gums sent to England for valuation.

87. During the year the following four varieties of gum were sent to England for valuation, and a report on the same was received under endorsement from the Under Secretary to the Government of India in the department of Agriculture, Revenue,

and Commerce to the Resident at Hyderabad, No. 264, dated 11th February 1873.

Dowra *(conocarpus latifolia.)*
Moheen *(oodina woodier.)*
Chironjee *(buchanania latifolia.)*
Kurria *(sterculia urens.)*

The report was not a particularly favorable one, except as regards the "Kurrai," and it is worthy of note that this is the cheapest and the most plentiful gum in the Melghat.

The Dowra, which in the local market is the dearest of all the gums, is in England reckoned as the one of least value.

A few of the leading merchants in Bombay have already commenced to interest themselves in the Melghat gums, and have called for reports from their branch firms in England on the specimens furnished to them by me.

Forest products sent to Vienna Exhibition.

88. In appendix B. is given a list of the various forest products of Berar forwarded in February last to the International Exhibition at Vienna.

Owing to the short time allowed for the preparation of the specimens of wood, many of them had to be cut from green trees, and all such will, I fear, have been very apt to split in drying.

Cattle pound established at Pili.

89. In June last a pound was established at Pili in consequence of the injury sustained by the plantations from cattle continually straying within their limits. The pound, though it has not been successful, financially, has had the desired effect of making villagers and others keep a better watch over their cattle when grazing. It is managed entirely by the Forest Department without any extra expenditure on establishments, and the fines realized during the 10 months it has been in existence amount to Rs. 27-15-0.

Health of Establishment.

90. The health of the establishment, I regret to say, does not compare favorably with former years. Two watchers have died from fever and one jemadar has had to take sick leave.

There is hardly a member of the establishment besides who has not been incapacitated more or less from sickness.

The establishment also suffered a great loss in the death of Darogah Soobrao, who was accidentally drowned last rains whilst crossing a hill stream when in flood. It will be interesting to note in the future whether the exclusion of jungle fires be found to have any injurious effect on the health of the establishment.

Services of Officers

91. In conclusion, it only remains for me to notice the services of the officers of the department who have discharged their duties with most credit during the year: Mr. Ballantyne has worked with his customary zeal and energy, and has rendered me much valuable assistance in the management of the Melghat Forests.

Notwithstanding its unhealthy climate, from which he has suffered considerably, he remained at Pili conducting plantation operations till nearly the close of the rainy season, which it will be remembered is the most important period of the year for work of this description.

Of the Darogahs the following are deserving of special mention, although all are reported to have worked well:—

Russool Khan—Oomrawuttee.
Ahomed Ally—Melghat.

92. The only regret I experience in submitting this report is the unsatisfactory state of matters in the southern division, where very much more might have been done.

But since affairs there have formed the subject of separate communications, it is perhaps unnecessary to notice them further here.

I have the honor to be,

Sir,

Your most obedient servant,

A. T. DRYSDALE,

Officiating Deputy Conservator of Forests, Berar.

APPENDIX A.

Rules defining the rights and privileges of the inhabitants of the Byraghur Reserve.

I. The inhabitants of the reserve are allowed to fell, free of charge, for home consumption, all woods, except teak, tewus, and sheeshum.

II. If any inhabitants of the reserve require teak they can obtain it from an open block of the unreserved forests, free, or on payment from the reserve itself, on application to the forest authorities there.

III. The inhabitants of the reserve shall be permitted to graze cattle or to cut grass untaxed, except in specially closed tracts, such as at present the Raipoor block and the plantation areas.

IV. The inhabitants of any closed block will have no restrictions placed on the grazing of their cattle in that block, except in any area reserved for special purposes, the said area to be duly defined; but no cattle belonging to villages outside the block will be allowed inside it. No cattle belonging to villages outside the reserve will be allowed to graze inside the reserve.

V. In entirely waste and uncultivated villages, no land can be taken up for cultivation without the permission of the Forest Officer.

VI. In cultivated or inhabited villages the cultivators can at pleasure take up land anywhere for cultivation, except land on which sheeshum or teak is growing.

Note.—The words "cultivated or inhabited" are used, because some villagers have their lands cultivated by the inhabitants of neighbouring villages, though the lands of that village are uninhabited.

VII. Tewus cut on cultivated land, or on land being prepared for cultivation, is permitted to be used for home consumption, but not for export.

Note.—This order as regards clearing of tewus is necessary as it (Tewus) springs up almost as a weed in any land allowed to lie fallow.

VIII. The inhabitants of the reserve shall be at liberty to collect, free of charge, the minor forest produce of the reserve—fruits, gums, &c., &c., and use or dispose of the same, except in the specially reserved area.

Note.—These privileges refer to the inhabitants of the reserve only, or to villagers part of whose lands lie in the reserve, not to those whose villages are entirely beyond the reserve boundary.